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Agricultural grain driers — Determination of drying performance —

Part 2: Additional procedures and crop-specific requirements

Séchoirs à grains agricoles — Détermination des performances de séchage —

Partie 2: Modes opératoires supplémentaires et exigences spécifiques à la récolte

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 11520 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 11520-2 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 7, *Equipment for harvesting and conservation*.

ISO 11520 consists of the following parts, under the general title *Agricultural grain driers — Determination of drying performance*:

— *Part 1: General*

— *Part 2: Additional procedures and crop-specific requirements*

Annexes C and D form a normative part of this part of ISO 11520. Annexes A, B and E are for information only.

Introduction

ISO 11520-1 covers only those methods for evaluating the drying performance of continuous-flow and batch grain driers to be used when drying rewetted wheat with a moisture content in the range 20 % to 15 % wet basis.

The methods specified in this part of ISO 11520 take account of the following factors:

— a greater range in input and output moisture contents;

— other crops apart from wheat;

— the impracticality of rewetting (dampening) some grains and of differing thermal characteristics.

For correcting the observed evaporation rates to those to be expected at different reference ambient and specified grain conditions, the correction formulae given in ISO 11520-1 are augmented by a series of tables from which correction factors are found by interpolation.

The methods specified are for determining the water evaporation rate which the machines concerned are able to achieve when drying wheat and other grains under the steady-state conditions prevailing during the tests. Methods for correcting observed performance to other input and reference ambient conditions are also specified.

Agricultural grain driers — Determination of drying performance —

Part 2:
Additional procedures and crop-specific requirements

1 Scope

This part of ISO 11520 specifies additional procedures and gives guidance for testing and evaluating the drying performance of continuous-flow and batch grain driers for specific grain crops including wheat, barley, oats, maize, rice, sorghum and rape. It supplements the general procedures given in ISO 11520-1 based on drying only wheat over the limited range of moisture content of 20 % to 15 % wet basis.

Methods and data are given for

a) determining the evaporation rate of driers when drying grain crops under steady state conditions, and

b) correcting the main drier performance characteristics, including evaporation rate, grain flow rate, drying time and specific energy and fuel consumption, to reference and other ambient conditions.

Procedures are specified for sampling input and output grain to assess changes in grain quality.

2 Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this part of ISO 11520. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 11520 are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 11520-1:1997, *Agricultural grain driers — Determination of drying performance — Part 1: General*.

3 Terms and definitions

For the purposes of this part of ISO 11520, the terms and definitions given in ISO 11520-1 and the following apply.

3.1
reference ambient conditions
ambient conditions of temperature, relative humidity and barometric pressure to which the results of a drier test are to be corrected

3.2
airflow rate
volume of air flowing in unit time per unit volume of grain (this value is also the number of air changes per unit of time)

NOTE There are several ways of expressing airflow rate, but for comparison between driers and crops it is convenient to express it in this way.

3.3
drying period
period during which drying air passes through grain

3.4
cooling period
period during which ambient or near-ambient air passes through grain

3.5
tempering
process by which partially dried grain is held in temporary storage for a number of hours without ventilation, allowing equalization of moisture content within the grain kernel with minimal stress cracking

NOTE When drying rice, a common practice is to cool it to within 2 °C of ambient prior to tempering for a minimum of 4 h. One or more further drying, cooling and tempering cycles may be given.

3.6
dryeration
process by which hot grain is taken directly from a drier and allowed to temper for a minimum of 4 h before being cooled slowly so as to extract additional moisture without using additional fossil fuel

NOTE The hot grain referred to is usually maize or rice, sorghum, soybeans or wheat.

3.7
test period
period during which a continuous-flow drier operating at a single steady state for at least one residence time, or a batch drier completing a single full cycle of drying and cooling, is monitored to enable its thermodynamic performance to be assessed

NOTE In multi-pass drying there may be several test periods.

3.8
wheat
grain of the genus *Triticum*, of which the commercially important species are *T. aestivum* (breadwheat), *T. durum* and *T. compactum* (club wheat)

3.9
barley
grain of *Hordeum sativum* or *H. vulgare*

3.10
oats
grain of *Avena sativa L.*

3.11
naked oats
grain of *Avena nuda L.*, which readily loses the husk at threshing

NOTE Naked oats have a high protein and oil content and the loss of husk makes the kernels prone to rancidity.

3.12
maize
grain of *Zea mays L.*

NOTE This is commonly referred to as corn in North America and some other countries. There are about seven different types of maize distinguished at the “convar” level of classification (between species and cultivar) and within each type there are hybrids having different drying properties. The most widely grown type is the convar *indentata* commonly known as “dent corn”.

3.13
rice
grain of *Oryza sativa L.*

3.14
paddy rice
rough rice
rice with the hull or husk still intact

3.15
brown rice
rice kernel from which the hull or husk has been removed during the milling process

3.16
milled rice
white rice
white grain or kernel remaining after the removal of the husk or hull and of the bran (whitening); the embryo or germ may be totally or partly removed and part of the bran may still remain on the grain

NOTE For some end uses, rice may be dried in the milled condition.

3.17
head rice
for brown and milled rice, either a whole or broken grain with length greater than or equal to three-quarters of the average length of a whole or unbroken grain

3.18
full head rice
unbroken head rice

3.19
broken rice
either brown or milled rice grain which has less than three-quarters of the average length of a full head grain

3.20
sorghum
grain of *Sorghum vulgare Pers*

NOTE Types of cultivated grain sorghum include kaffir corn, milo and durra (Africa), feteritas (Sudan), shallu, jowar, cholum and “Indian millet” (India), and kaoliang (China).

3.21
rape (canola)
seeds of *Brassica napus* or *B. campestris* (also known as *B. rapa*)

NOTE Canola and rapeseed are both members of the same botanical family. The designation “canola” has been established by Canada and is applicable to varieties that meet the canola standard for the level of erucic acid and glucosinolates in the seed. From the drying performance point of view, there is no evidence of any difference in drying rates or drying characteristics between rapeseed and canola.

4 Symbols and abbreviated terms

These are given in Table 1.

Table 1 — Symbols and abbreviated terms

Symbol	Description	Unit
B	rated output	kg/s
E	water evaporation	kg
E'	water evaporation rate	kg/s
F	fuel consumption	kg/s
G	holding capacity of drier	kg
J	specific fuel consumption	kg/kg
K	factor for correcting evaporation (defined in 7.2.3)	—
M	moisture content of grain, wet basis (m.c.w.b)	%
N	anticipated number of test periods	dimensionless
Q	specific heat consumption	J/kg
S	specific energy consumption	J/kg
V	volumetric capacity of drier	m^3
W	energy consumption	J
q_v	air volume flow rate	m^3/s
$c_{1...3}$	coefficients in Equation E.1	—
$d_{1...3}$	coefficients in Equation E.2	—
c_{pa}	specific heat of air at constant pressure	$kJ \cdot kg^{-1} \cdot K^{-1}$
c_{pw}	specific heat of water vapour at constant pressure	$kJ \cdot kg^{-1} \cdot K^{-1}$
d	depth of grain bed	m
f	face area at point of air entry to grain bed	m^2
h	specific enthalpy	J/kg
i	coefficient in Equation E.3	—
m	mass of grain in a single batch or passing through a continuous-flow drier in a test run	kg
m'	mass flow of grain	kg/s
n	exponent in Equation E.3	—
p	pressure or pressure drop	Pa
$s(y)$	standard error of mean of variable y	—
t	duration of test period	s
ρ	density	kg/m^3
τ	grain residence time in drier	s
Other subscripts		
e	electrical	—
f	final, at drier exit	
i	initial, at drier inlet	
o	observed value	
s	corrected value at reference or specified conditions	
p	predicted (for model)	
sys	drier system of ducts and plenum chambers	
t	thermal	

5 Test procedure

5.1 General

This clause shall be used in conjunction with clause 7 of ISO 11520-1:1997.

NOTE For the general principle of the tests, test equipment and preparation for testing, see clauses 5, 6 and 7 respectively of ISO 11520-1:1997

Driers are most often used to dry grain which is physiologically ripe and for which the variation in moisture content (m.c.) at harvest is largely a function of ambient weather conditions. For the purposes of a drier test, such grain can normally be rewetted artificially and the test itself conducted more conveniently outside the harvest period. One advantage of this is that the variation in moisture content of the wet grain is usually very small, i.e. less than ± 0,5 % wet basis (w.b.). This is important for minimizing uncertainty in the results.

However, some crops (e.g. maize in France) are harvested at moisture conditions in excess of those to which the grain can reasonably be rewetted and the test has to be conducted during the harvest. In these cases there may be considerable variation in the moisture content of the wet grain and residence times may be large.

Clause B.4 of ISO 11520-1:1997 prescribes procedures for estimating the uncertainty (or level of confidence) in derived performance measures. Variation in ingoing moisture content is an important component of the determination of uncertainty. The uncertainty in determination of the evaporation rate and related quantities increases if too little moisture reduction is achieved (see annex A). A moisture reduction of more than four percentage points is therefore advisable. Provisions are given in 5.4.

5.2 Test period

The test period shall normally be a minimum of one residence time in a continuous flow drier or one drying and cooling cycle in a batch drier.

ISO 11520-1 does not make a direct requirement of the length of the test period, although experience has shown that, for a continuous-flow drier, 1 h is normally sufficient provided that

a) 1,5 residence times are allowed for stabilization, and

b) sampling of the input grain begins prior to the start of the test period, so that the initial moisture content of the grain that will leave the drier during the test period is known.

Where good estimates of the mass flow rate and the measured capacity are available, calculate the residence time using the formulae given in 10.2.2 of ISO 11520-1:1997. For these formulae, the rated output, B (in kilograms per second), may be used in place of the observed mass flow of grain q_m. Otherwise, Table 2 may be used to provide a guide to the expected residence time.

Table 2 gives a guide to approximate residence times (in hours) for combinations of airflow, drying air temperature, moisture removed and specific energy consumption, calculated for a final moisture content of 15 %.

5.3 Frequency of sampling grain

5.3.1 Continuous flow driers

Unless the range of variation in the moisture content of input grain is known to be less than 1 % w.b. (see annex A), take a minimum of 20 samples from the ingoing and outgoing grain streams of a continuous-flow drier at a frequency such that they are spaced evenly over the test period.

Clause 7 of ISO 11520-1:1997 requires sampling of both ingoing and outgoing grain streams at a frequency providing at least 12 samples of each, spaced evenly over the test period. For rewetted wheat in which the range of variation is less than 1 % w.b., these prescriptions have given good accuracy for drying from 20 % w.b. to 15 %

w.b., but are not adequate for all crops. The aim is to reduce the standard error of the mean to ensure an accuracy of estimation of the evaporation rate of ± 5 % (see annex A and Figure A.2).

Ingoing samples will need to correspond to the grain exiting from the drier during the test period (see 7.1 of ISO 11520-1:1997). Some grain samples taken will therefore later be found to be unnecessary, although their additional use in rapid moisture tests may well have given essential information on the progress of stabilization.

Table 2 — Guide to drier residence times

Moisture removed	**Specific heat energy consumption**	**Residence time** h					
		Specific air volume flow rate $m^3 \cdot s^{-1} \cdot m^{-3}$					
		0,3			**3,0**		
		Drying air temperature					
% w.b.	MJ/kg water evaporated	40 °C	90 °C	140 °C	40 °C	90 °C	140 °C
5	4	7	4	2	0,6	0,2	0,1
	10	17	7	5	1,4	0,5	0,4
25	4	34	13	9	3	1,1	0,7
	10	85	33	23	7	3	2

5.3.2 Batch driers

Because of the greater variability of moisture content that might occur in the output stream from a batch drier, a minimum of 50 samples of the output grain shall be taken.

5.4 Moisture removal

Except for multi-pass drying, a minimum of four percentage points of moisture content shall be removed in each test period. To maintain reasonable accuracy on the estimation of evaporation rate (see annex A), this minimum shall be increased in line with the variability in the ingoing moisture content in accordance with Table 3 or Figure A.3.

Moisture content prescriptions for specific crops are discussed in annex B.

Table 3 — Minimum moisture removals

Range in ingoing moisture content % w.b.	**Minimum moisture removal** % w.b.
0,5	4
1	5
2	8
3	10
4	19
5	23

5.5 Grain dampening

Unless it is freshly harvested (i.e. less than 6 wk from harvest), cereal grain shall not exceed 17 % m.c.w.b. before dampening, and shall not have received more than one drying treatment.

The procedure for dampening is described in 6.3.2 of ISO 11520-1:1997.

Experience has shown that Canadian varieties of wheat, barley and canola can be dampened to 25 % w.b., 25 % w.b. and 20 % w.b., respectively.

5.6 Procedure for a multi-pass test

5.6.1 General

This procedure specifies the additional steps necessary for a multi-pass test.

5.6.2 Quantity of grain

Calculate the minimum quantity of grain for one test using the formula given in 7.2 of ISO 11520-1:1997, with the difference that, in this case, N represents the number of passes and t is the time for each pass. If more than one multi-pass test is to be conducted, multiply the formula by the number of such tests.

5.6.3 Outline procedure for continuous flow driers

Fill the drier, run it as for a single pass, and direct the output grain to a discard store. At the start of the test period, direct the output grain to the test period store. When the test period is complete, direct the output grain to a buffer store and continue drying without adjustment until all the grain has passed through the drier.

Cool the grain that is in both the test period store and the buffer store to within 2 ^{o}C of ambient temperature, and temper it for 4 h.

Fill the drier with the grain from the previous test period and sample the input grain for use in calculating evaporation during the previous test period. Restart the drier, direct the grain to the discard store and continue sampling the input. When the test period store is emptied, switch to feeding from the buffer store.

When the moisture content of the drier output grain has stabilized, start a new test period by switching the grain to the test period store. When the test period is complete, direct the output grain to a new buffer store and continue drying until all the grain has passed through the drier.

Repeat the procedure until all passes have been completed.

5.6.4 Outline procedure for batch driers

5.6.4.1 Grain stationary

A drier in which the grain remains stationary during drying shall be emptied between successive drying periods, taking samples for moisture content at input and output as in a single-pass test.

The purpose of removing the grain during rest periods is to aid the process of moisture equalization and destroy any moisture gradient.

5.6.4.2 Grain recirculating

A drier in which the grain is recirculating during drying shall not be emptied during rest periods. Moisture content at the end and beginning of each test period shall be assessed on the basis of samples taken from the recirculating grain stream.

6 Grain quality

6.1 General

It is assumed that good quality grain will be used in a drier test. It is therefore important that its properties exceed the minimum national limits for the grain concerned. Where, as in the US and Canada, grain is categorized into grades, the aim should be to use grain satisfying Grades 1 and 2.

NOTE A useful summary of cereal grain quality standards worldwide is given by Kent and Evers [1].

6.2 Input grain

6.2.1 All grains

Determine the moisture content of those samples taken from the input grain stream during the test period.

Record any relevant detail of grain origin or provenance, and the variety, hybrid or both.

Either

a) obtain a 2 kg sample of the input grain as specified in 6.3.1 of ISO 11520-1:1997, or,

b) if the grain is freshly harvested and there is no static bulk, take samples from the input grain stream additional to those being taken to monitor moisture variation with time.

If the grain is to be dampened, obtain a 2 kg sample both before and after dampening.

Using a sample divider, remove from each 2 kg sample a 100 g subsample. Determine the moisture content of the samples.

Dry the remainder of the 2 kg sample or samples with unheated air in a laboratory drier until moisture contents of approximately 15 % w.b. and 10 % w.b. are reached for the cereal seeds and oilseed rape, respectively.

Determine the mass per hectolitre (bulk density) using a calibrated instrument (chondrometer).

Draw subsamples of sufficient size for the determination of mass per 1000 grains, and of purity and germination using ISTA procedures [2].

NOTE 1 The ISTA procedures contain instructions for checking that the averaged results of purity and germination tests fall within prescribed tolerances. If they do not, retest procedures are to be followed. It is particularly important to accurately assess germination capacity because this property is a good guide to quality in general and can be a sensitive indicator of heat damage during drying. (See also 6.2.2.)

NOTE 2 In barley, seed dormancy may be broken by drying.

6.2.2 Wheat for baking

Depression in germination (6.2.1) shall be taken as an indication of damage to baking quality.

NOTE A simple and rapid test for heat damage to protein has been shown to be a useful guide to baking quality.

6.2.3 Maize

From the remainder of the 2 kg sample, draw four samples each of 100 grains. Examine the individual kernels on a grain viewer and count the number of cracked grains. Express the number of cracked grains as the mean of the four samples.

NOTE Cracked grains reduce the value of maize for wet milling.

6.2.4 Rice

6.2.4.1 From the remainder of the 2 kg sample, draw four samples each of 100 grains. Carefully husk by hand, examine the individual kernels on a grain viewer and count the number of cracked grains. Express the number of cracked grains as the mean of the four samples.

6.2.4.2 From the remainder of the 2 kg sample, draw a further four samples each of 200 g and process through a laboratory husker and whitener. From the output from this machine:

a) draw 100 g samples of brown rice and determine the number of broken grains;

b) take four samples each of 100 grains and determine the number of cracked grains as given in 6.2.4.1;

c) return the material to the remainder of the 200 g samples passed through the husker.

Separate sufficient whole grains of husked rice to determine the mass per 1 000 grains of the brown rice. Return the grains to the sample.

Using the laboratory whitener, mill the brown rice and separate the head rice and broken rice from the rest of the grain materials. Weigh each component, in grams. Calculate the head milled rice recovery.

Draw four 100 grain samples of the milled rice and examine them for any damage such as scorching, gelatinization or discoloration that may be due to excessive heat. Record the percentage of heat-damaged grains.

6.3 Output grain

6.3.1 All grains

Determine the moisture content (see 6.2.1) of those samples taken from the output grain stream during the test period.

Combine the remainder of these samples to produce one or more samples of 2 kg representative of the output grain. If the moisture content of the output grain is not close to 15 % w.b. for cereals or 10 % w.b. for rapeseed, either use a laboratory drier or allow it to equilibrate in a laboratory.

Determine the mass per hectolitre, the mass per 1 000 grains, and the purity and germination as given in 6.2.1.

To determine whether any reduction in germination between the input and output grain is significant at the 2,5 % level of probability, use Table C.1 in annex C.

NOTE Samples with low initial germination are likely to exhibit much more depression of germination than those with high initial germination.

6.3.2 Wheat for baking

Proceed as for 6.2.2.

6.3.3 Maize

Determine the percentage of cracked grains as in 6.2.3. Express the increase in cracked grains from input to output as a percentage of the input.

6.3.4 Rice

Follow the procedure of 6.2.4. Express the values for the output grain as a percentage of those for the input grain.

7 Methods of correction of test results

7.1 General

For the basis of the method of calculation of the test results and correction to standard conditions, see also clause 10 of ISO 11520-1:1997.

7.2 Evaporation rate

7.2.1 General

The water evaporation rate shall be determined in accordance with 8.2.4 of ISO 11520-1:1997, and corrected to specified conditions either by using a computer simulation of the test drier (7.2.2) or by interpolation of tabular data (7.2.3).

The evaporation rate will not only be affected by a change in air-mass flow rate caused by a change in air density, but will also be directly affected by differences between the observed and specified conditions in

— drying air temperature,

— grain moisture reduction,

— airflow,

— ambient air humidity,

— ambient air temperature, and

— barometric pressure.

In this list, arranged in order of influence on evaporation rate, airflow is assumed to alter either because of a change in resistance of the grain or through positive adjustment of the fan speed or throttling. Barometric pressure affects the psychrometric properties of the air.

Normally, it will be required to correct and quote the drier performance at specified values of the above variables. These specifications will vary both between, and to a lesser extent within, countries.

Table 4 gives values of reference air ambient conditions that are typically used in three countries.

Table 4 — Reference air ambient conditions for specifying drying performance

Country	Ambient temperature °C	Ambient relative humidity %	Barometric pressure Pa
UK	15	80	101 325
Canada (prairie regions)	10	50	101 130
Philippines	27	80	100 000

7.2.2 Using a computer model

The evaporation rate shall be corrected by multiplying the observed test value, E'_{o}, by the value predicted by the model for the specified conditions, E'_{ps}, and dividing by the value predicted for observed conditions, E'_{po}.

No model, however sophisticated, can be expected to give exact agreement with the results observed experimentally. This is because

a) there will be a random and systematic error in the experimental observations, and

b) a systematic error in the model.

Therefore, those parameters of the model which describe fundamental properties of air and grain, and those which define values peculiar to the test (e.g. temperature), should not be adjusted to make the predicted performance fit that observed experimentally. However, adjustment of the value of airflow used in the simulation is permissible in circumstances where accurate measurement of the airflow is difficult and, for whatever reason, a value calculated by indirect methods is not available.

Grain thermal properties have a significant effect on model results. Where facilities and time are available, the mass transfer coefficients and moisture equilibria used in the model should be those measured on the test grain.

7.2.3 Using tabular data

Calculate the corrected evaporation rate by:

$$E'_{\mathrm{s}} = KE'_{\mathrm{o}} \tag{1}$$

where K is the ratio of the net evaporations for the specified reference conditions and the observed conditions obtained by interpolation from tables in annex D.

In the tables in annex D, the quantity “net evaporation” is the mass of water, in grams, evaporated per kilogram of dry air, as predicted by a computer simulation of a continuous cross-flow drier having a drying to cooling ratio of 3:1. The values are calculated for a range of the main variables that affect evaporation in a drier. The assumption is made that, over a limited range of conditions, the proportional change in the evaporation rate of most driers will be similar. The limits to the range have not been set but it is not intended that these tables be used to predict drier performance over a wide range of conditions. In most cases, linear interpolation will be adequate.

Table 5 gives the observed and required specified reference conditions for a drier test using wheat. In this case it is necessary to interpolate the tables, as shown in Table 6, to determine net evaporations at both the observed and required conditions.

Table 5 — Example of observed and required specified reference conditions

Performance parameter	Observed test conditions	Values for interpolation of observed test conditions from Table D.2	Specified reference conditions	Values for interpolation of reference conditions from Table D.2
Airflow, in $m^3 \cdot s^{-1} \cdot m^{-3}$	0,9	0,5 - 1,0	1	1
Drying air temperature, in ^{o}C	68	60 - 70	65	60 - 70
Final m.c., in % w.b.	14,8	14 - 15	15	15
Initial m.c., in % w.b.	20,5	20 - 22	20	20

Table 6 — Example interpolation of four parameters

1	2	3	4	5	6	7	8	9
Airflow	**Drying air temperature**	**Final moisture content of grain**	**Initial moisture content of grain**	**Net evaporation**				
				Tabulated value	**Interpolated value for initial moisture content**	**Interpolated value for final moisture content**	**Interpolated value for drying air temperature**	**Interpolated value for airflow**
$m^3 \cdot s^{-1} \cdot m^{-3}$	° C	% w.b.	% w.b.	g/kg	g/kg	g/kg	g/kg	g/kg
0,5	60		20	11,73				
		14	20,5		11,85			
			22	12,22				
		14,8	20,5			11,94		
			20	11,83				
		15	20,5		11,96			
			22	12,36				
	68	14,8	20,5				14,22	
	70		20	14,62				
		14	20,5		14,77			
			22	15,20				
		14,8	20,5			14,79		
			20	14,62				
		15	20,5		14,79			
			22	15,29				
0,9	68	14,8	20,5					13,20
1	60		20	10,26				
		14	20,5		10,42			
			22	10,88				
		14.8	20,5			10,63		
			20	10,51				
		15	20,5		10,68			
			22	11,18				
	68	14	20,5				12,94	
	70		20	13,21				
		14	20,5		13,4			
			22	13,95				
		14,8	20,5			13,52		
			20	13,34				
		15	20,5		13,55			
			22	14,18				

The first step is to interpolate to determine the predicted net evaporation at the observed test conditions. Since none of the four values coincide with tabulated values given in Table D.2, it is necessary to interpolate for all of them. The number of values extracted from the table is equal to two, raised to the power of the number of parameters: $2^4 = 16$ in this case. The first four columns in Table 6 set out the tabulated conditions which effectively bracket the observed conditions. The corresponding tabulated values of net evaporation are contained in the fifth column. The sixth column contains eight values which have been interpolated for an initial grain moisture content of 20,5 % from those in column five. Similarly, in column seven, these eight values are reduced to four, which interpolate for a final grain moisture content of 14,8 %, and then further reduced to two in column eight by interpolating for the temperature of 68 °C. The final interpolation, in column nine, is for the airflow and produces a single value (13,20 g/kg) for the predicted net evaporation for the observed conditions of E'_{po}.

Interpolation to determine the net evaporation representing the specified reference conditions requires only a single interpolation between net evaporations at 60 °C and 70 °C, and gives a value for the predicted net evaporation of 11,93 g/kg.

Therefore K = (11,93/13,20) = 0,905 and hence in this case $E'_{\mathrm{s}} = 0{,}905\,E'_{\mathrm{o}}$

Using the same procedure, a correction for the change in evaporation with change of seed type can be determined using Table D.3, D.4, D.5 or D.6. It will be necessary first to estimate the change in airflow caused by differing crop resistance. A procedure for doing this is given in annex E.

Table D.1, although specific to wheat, provides for other crops an estimate of the adjustment to different reference ambient temperatures and relative humidities.

7.3 Mass flow rate of grain

For a continuous-flow drier only, calculate the corrected output of dried grain:

$$m'_{\mathrm{fs}} = E'_{\mathrm{s}} \frac{M_{\mathrm{is}} - M_{\mathrm{fs}}}{100 - M_{\mathrm{is}}} \tag{2}$$

7.4 Corrected drying time

For a batch drier only, calculate E'_{s} and then calculate the corrected drying time:

$$t_{\mathrm{ds}} = \frac{m_{\mathrm{fs}}\left(M_{\mathrm{is}} - M_{\mathrm{fs}}\right)}{E'_{\mathrm{s}}\left(100 - M_{\mathrm{is}}\right)} \tag{3}$$

Evaporation during cooling is attributed to the drying period, as is assumed in the calculation of E'_{o} (see 8.3.1 of ISO 11520-1:1997).

7.5 Specific thermal energy, total energy and fuel consumption

Calculate the corrected value of specific thermal energy consumption:

$$Q_{\mathrm{s}} = \frac{W_{\mathrm{ts}}}{E_{\mathrm{s}}} \tag{4}$$

Correct the specific total energy consumption:

$$S_{\mathrm{s}} = \frac{Q_{\mathrm{es}} + Q_{\mathrm{ts}}}{E_{\mathrm{s}}} \tag{5}$$

and the specific fuel consumption:

$$J_S = \frac{F_S}{E'_S} \tag{6}$$

8 Test report

The reporting of the drier test shall be in accordance with clause 11 of ISO 11520-1:1997.

Annex A
(informative)

Grain moisture content and sampling

A.1 Background

The accuracy of estimation of the evaporation rate depends upon the accuracy of estimation of the mass of grain dried and the moisture removal. This annex recommends the frequency with which it is necessary to sample for grain moisture content and the amount of moisture it is necessary to remove so as to achieve an accuracy of ± 5 % on the estimate of the evaporation rate.

From B.4.1 of ISO 11520-1:1997, the evaporation is:

$$E = m\frac{(M_{\mathrm{i}} - M_{\mathrm{f}})}{(100 - M_{\mathrm{i}})} \tag{A.1}$$

The combined relative standard error of the mean evaporation is:

$$\frac{s(E)}{E} = \sqrt{\left[\left(\frac{s(m)^2}{m}\right) + \left(\frac{100 - M_f}{(100 - M_{\mathrm{i}})(M_{\mathrm{i}} - M_{\mathrm{f}})} \cdot s(M_{\mathrm{i}})\right)^2 + \left(\frac{-1}{(M_{\mathrm{i}} - M_{\mathrm{f}})} \cdot s(M_{\mathrm{f}})\right)^2\right]} \tag{A.2}$$

Given that m, the mass of grain dried, can be measured to a good degree of accuracy such that the standard error of the mean is less than 0,0005 of the total mass, the accuracy of measurement of the evaporation is dependent upon the extent of the variation in the inlet and outlet moisture contents [i.e. the standard errors of the means (SEM)] and the amount of moisture removed.

ISO 11520-1 specifies that at least 12 samples be taken of the inlet and outlet grain for a continuous-flow drier and increases the output sampling to at least 50 for a batch drier. The reason for increasing the number of samples of the output grain in the batch drier is to minimize the effect of any moisture gradient that has developed during the drying period. In the continuous-flow case it was assumed that, if the drier had been working at steady state, there would be no significant variation in the outlet moisture content; it would certainly be damped relative to variation in the inlet moisture content.

In ISO 11520-1, where the test grain is wheat, rewetted to 20 % moisture content, the variation in inlet moisture content ought to be quite low (i.e. of the order of ± 0,25 %) so that a minimum of 12 samples for the inlet and outlet grain is adequate. However, this part of ISO 11520 is concerned with tests in which the test grain may be naturally wet and of a higher moisture content than that used for wheat.

A study was made of

a) the effect of the range of grain moisture-content removal on the number of samples necessary to achieve a reasonably good estimate of the mean moisture content, and its standard error, and

b) the level of combined standard error to be achieved to keep the accuracy of the evaporation to within ± 5 % at the 95 % level of confidence.

A.2 Frequency of sampling

On the assumption that the variation in grain inlet moisture content is normally distributed about the mean, a random number generator was used to generate values of inlet moisture content spaced about two means of 20 % and 40 % over ranges of variation of inlet moisture content from 1 % to 6 %. The exercise was repeated several times and for numbers of samples from 5 to 50.

The results (see Figure A.1) show that the SEM is dependent upon the range in variation of inlet moisture content about the mean but not upon the value of the mean. For means of 20 % and 40 % taken together, the SEMs (% w.b.) could be expressed as a linear function of the range so that:

$$SEM = 0{,}003 + 0{,}0735 \quad \text{(A.3)}$$

where 0,003 + 0,0735 is the range of inlet moisture content.

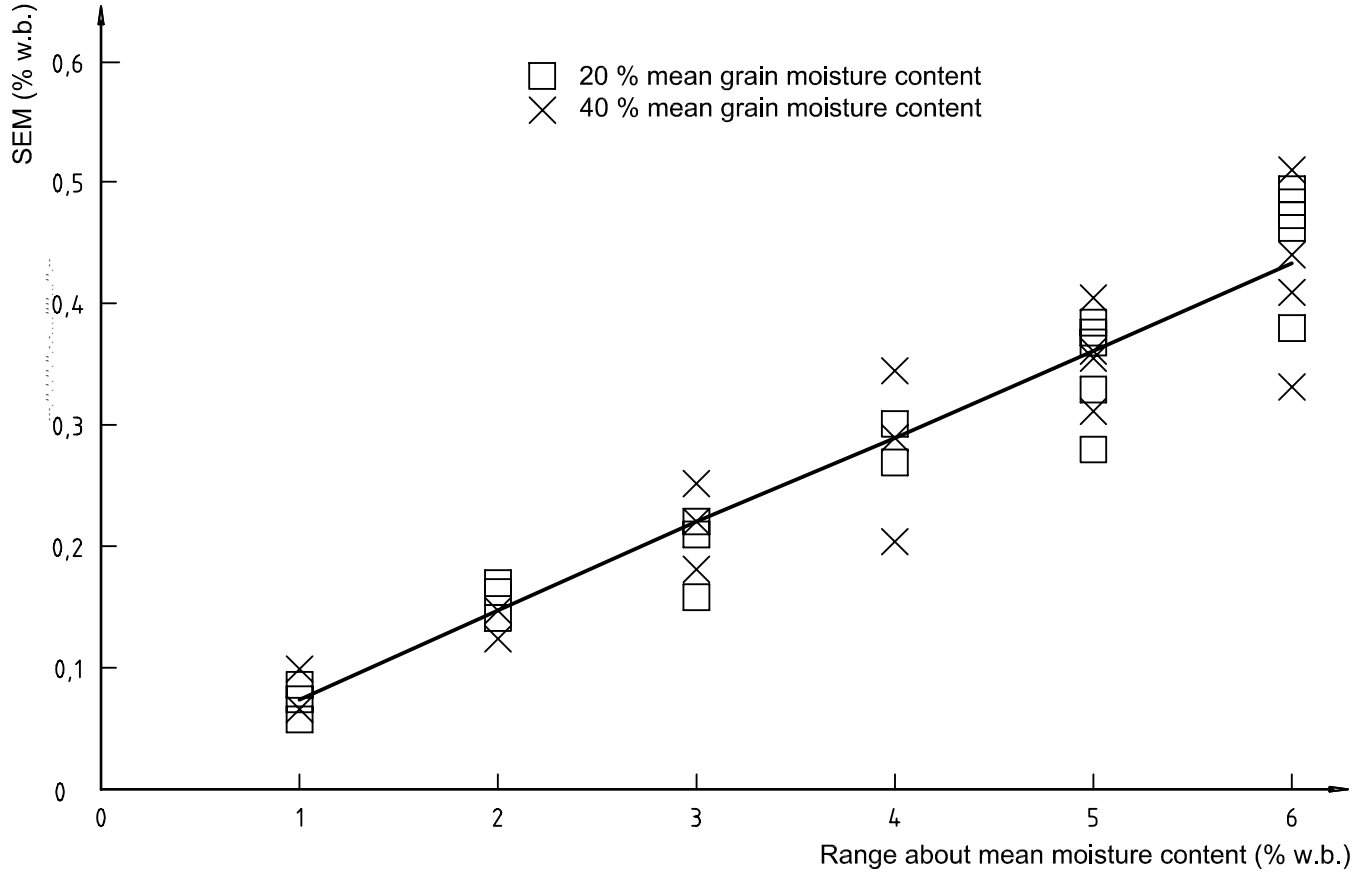

Figure A.1 — Effect of range of variation in grain moisture content on the standard error of the means of 15 samples

Figure A.2 shows how the SEM is affected by the number of samples taken.

Although 12 samples may be adequate if the range about the mean moisture content is less than 1 %, for larger ranges a greater number of samples can further reduce the SEM. As the number of samples is increased from 35 to 50, little further reduction in SEM takes place. A reasonable conclusion to draw from Figure A.2 is that in all cases the number of samples taken should be increased to 20 and that where the range is likely to be greater than 3 %, the number should be increased to not less than 30.

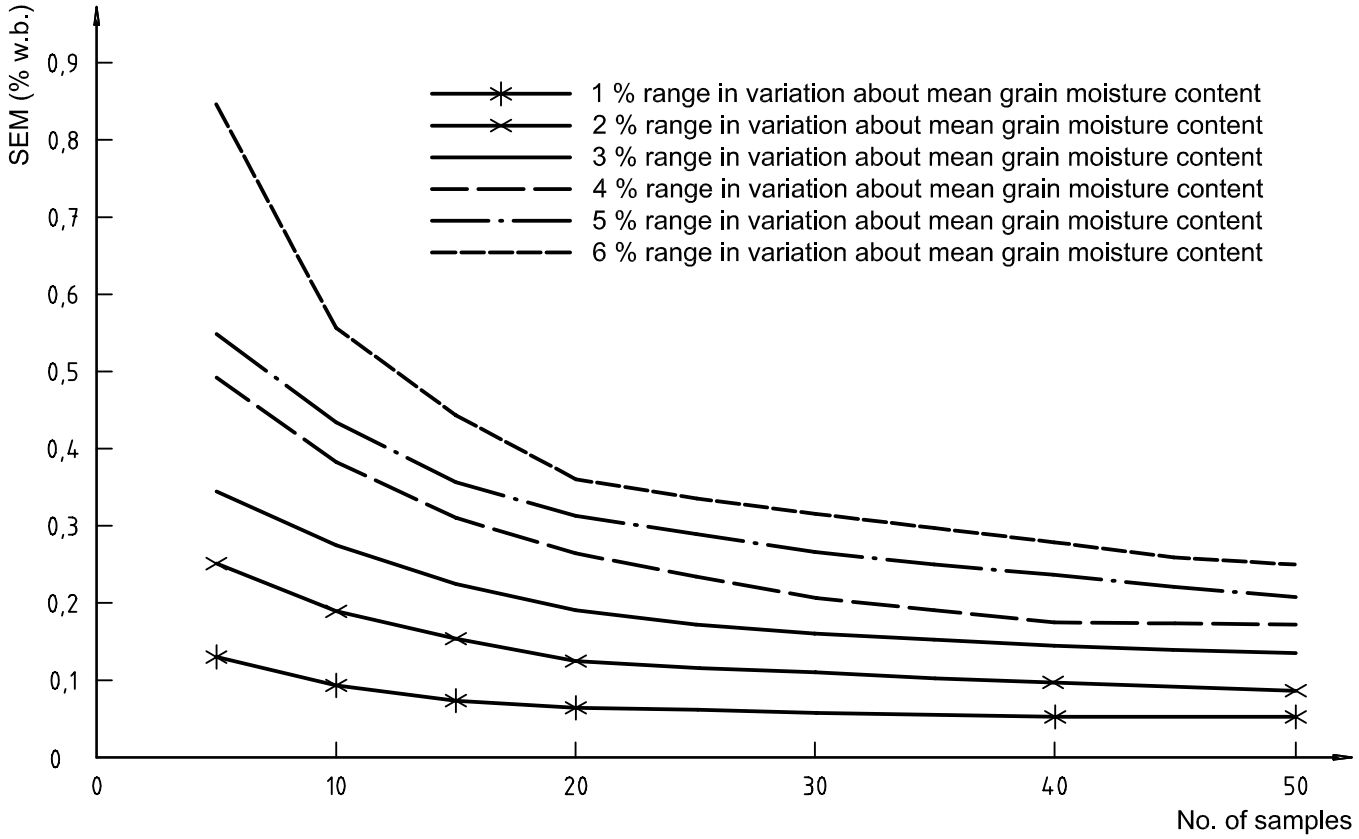

Figure A.2 — Effect of number of samples on the standard error of the mean grain moisture content for different ranges in variation

A.3 Acceptable levels of grain-moisture removal during testing

Having established the frequency of sampling to achieve reasonably low SEMs, the next steps were to solve equation A.2, which gives a combined standard error on the mean evaporation. This enables the calculation of a value for the combined degrees of freedom from which to find the value of Student's t, and thus to derive an estimate of error at the 95 % level of probability.

A minimization routine was then used to find the values of SEM of the grain inlet moisture content necessary to achieve an accuracy of ± 5 % of the mean evaporation at the 95 % level of confidence. For this purpose, the SEM of the grain outlet moisture content was assumed to be 0,08 % w.b. From these SEMs, the range in variation in grain inlet moisture content could be estimated from the linear relationship given in equation A.3.

It was found that the dominating factor controlling the accuracy of the estimation of evaporation was the amount of moisture removed from the grain, $\left(M_{\mathrm{i}} - M_{\mathrm{f}}\right)$ (see Figure A.3).

Note that with the SEM of the outlet grain moisture content fixed at 0,08 % w.b., an accuracy of 5 % cannot be achieved, even with zero variation in grain inlet moisture content at a moisture removal of less than 3,5 % w.b.

This analysis also confirms that the 5 % moisture removal specified for milling wheat in ISO 11520-1 is adequate, and that in the case of French maize, for example, a total range of 5 % w.b. (± 2,5 % w.b.) in grain inlet moisture content can be tolerated, provided that 25 % moisture is removed from the grain.

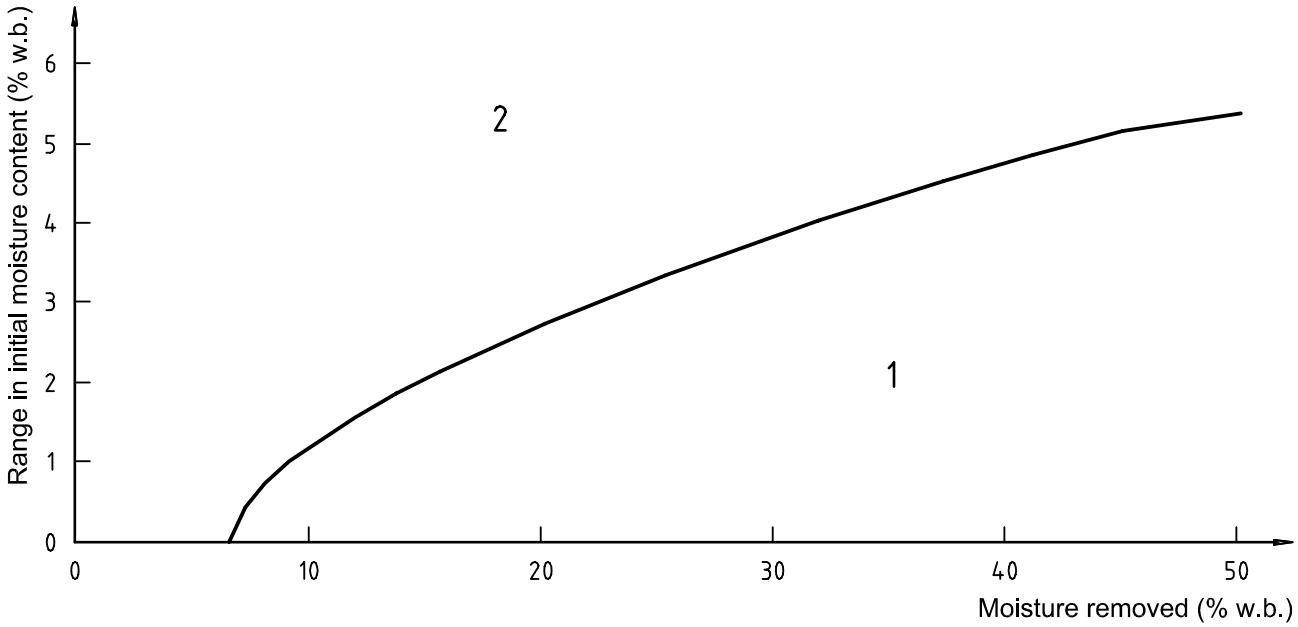

Figure A.3 — Relationship between moisture removed and range in variation in grain moisture content for a confidence level on evaporation rate of ± 5 % or better at the 95 % level of probability

Annex B
(informative)

Moisture removal in specific crops

B.1 Wheat, barley and oats

It is the convention in England and Wales to specify drier performance when drying either from 21 % to 16 % w.b. or from 20 % to 15 % w.b., i.e. a moisture removal of 5 % w.b. In Canada, the convention is drying from 19,5 % to 14,5 % w.b. In some countries of northern Europe (e.g. Scotland and Finland), wheat with moisture content of up to 30 % w.b is harvested. In these cases, the grain may be dried in two passes.

B.2 Maize (Corn)

Maize is not suitable for dampening, so all the tests are performed with grain fully ripened and at its natural moisture content. In North America, 10 % moisture removal, drying from 25 % w.b. to 15 % w.b is practised. In France and other parts of mainland Europe, maize is harvested at moisture contents of up to 40 % w.b. and is required to be dried to 15 % w.b. If dryeration is practised, the grain moisture content at exit from the drier prior to tempering is increased to between 16 % w.b. and 16,5 % w.b.

NOTE Maize for seed is often dried on the cob prior to shelling. This part of ISO 11520 is concerned only with driers for shelled kernels.

B.3 Oilseed rape (canola)

Either freshly harvested or artificially remoistened grain is used. Moisture removal of 5 % w.b. ought to be satisfactory when drying from a typical grain inlet moisture content of 15 % w.b.

B.4 Rice

Paddy is not suitable for dampening, so all the tests should be performed with grain fully ripened and at its natural moisture content. In southern Europe, paddy may be dried in one pass from 22 % w.b. to 14 % w.b. (i.e. an 8 % w.b. removal) at low drying air temperatures, depending upon type. For “pearl” and “vitreous” kernel types, the respective maximum drying air temperatures are 35 °C and 40 °C. In much of the world, paddy is dried in several passes with 2 % to 3 % w.b. moisture content removed per pass. In tropical regions it is reasonable to expect an inlet grain moisture content of 25 % ± 1,5 % w.b. in the high or wet season and 20% ± 1,0 % w.b. in the low or dry season.

B.5 Sorghum

Sorghum is harvested and dried at moisture contents which suggest that it could be suitable for dampening, however no information is currently available. In US conditions, sorghum is harvested at about 25 % m.c.w.b. The maximum limit of moisture content for USA Grade No. 1 is 13 % w.b.

Annex C
(normative)

Testing reduction in grain germination

To determine whether a reduction in grain germination during drying is likely to have been caused by the drying, the following procedure shall be used.

a) Calculate, to the nearest whole number, the mean of the respective percentage germinations of the ingoing and outgoing grain.

b) In either the first or second column of Table C.1, locate the range within which this mean value falls. Read, in the third column of the same row, the tolerance between two tests.

c) If the difference between the ingoing and outgoing germination percentages exceeds this tolerance, the difference is significant at the 2,5 % level of probability.

Table C.1 — Tolerances for testing a difference between two percentage germinations

Range in mean germination of ingoing and outgoing grain		**Tolerance between two tests**
Mean > 50 %	**Mean < 50 %**	
%	%	% **germination**
98 to 99	2 to 3	2
95 to 97	4 to 6	3
91 to 94	7 to 10	4
85 to 90	11 to 16	5
77 to 84	17 to 24	6
60 to 76	25 to 41	7
51 to 59	42 to 50	8
NOTE These data are for comparing germination tests performed on a sample of 400 seeds. They are derived from Table 5.2 of the annex to chapter 15 of the ISTA procedures [2], in which a comprehensive description of the origin of the data is given.		

EXAMPLE 1 If the germination percentages of the ingoing and outgoing grain are 95 % and 90 % respectively, their mean is 92,5 % and their difference is 5 %. Reference to Table C.1 gives a tolerance value of 4, therefore the difference is significant.

EXAMPLE 2 If the germination percentages of the ingoing and outgoing grain are 66 % and 60 % respectively, their mean is 63 % and their difference is 6 %. Reference to Table C.1 gives a tolerance value of 7, therefore the difference is not significant.

Annex D
(normative)

Tables for correction of drier performance

This annex contains six tables presenting the net evaporation (in grams of water per kilogram dry air) computed for a simple cross-flow drier having a drying to cooling ratio of 3:1. If a computer simulation of drying is not available, the tables shall be used according to 7.2.3 for adjusting the evaporation rate to specified reference conditions for a range of the values of the prime variables affecting the drier evaporating performance.

All tables in this annex consider the effect of changes in volumetric airflow, drying air temperature and final moisture content of grain.

Table D.1 deals with the effect of changes in ambient air temperature and relative humidity specifically for wheat at an input moisture content of 20 % w.b.

Tables D.2 to D.6 deal with the effect of changes in initial moisture content for wheat, oilseed rape, maize, rice and sorghum respectively. Table D.4 is divided into two parts. The first part deals with grain initial moisture content of from 18 % to 28 %. The second deals with grain initial moisture content of from 30 % to 40 %.

The values given for wheat can also be used for barley and oats.

Table D.1 — Wheat — Effect of ambient air temperature and relative humidity at constant initial moisture content of grain

Volumetric airflow	Drying air temperature	Final moisture content of grain	Relative humidity of ambient air	Net evaporation g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
0,25	50	12	50	10,44	10,44	10,34	10,13	9,78
0,25	50	12	60	10,19	10,08	9,86	9,51	8,99
0,25	50	12	70	9,92	9,72	9,38	8,88	8,18
0,25	50	12	80	9,66	9,36	8,89	8,24	7,27
0,25	50	12	90	9,38	8,98	8,38	7,51	a
0,25	50	13	50	10,61	10,64	10,57	10,38	10,03
0,25	50	13	60	10,36	10,29	10,10	9,77	9,27
0,25	50	13	70	10,10	9,94	9,65	9,19	8,54
0,25	50	13	80	9,84	9,59	9,19	8,61	7,82
0,25	50	13	90	9,58	9,24	8,73	8,02	7,09
0,25	50	14	50	10,71	10,76	10,71	10,52	10,18
0,25	50	14	60	10,45	10,41	10,24	9,92	9,41
0,25	50	14	70	10,20	10,06	9,78	9,33	8,68
0,25	50	14	80	9,94	9,72	9,33	8,75	7,97
0,25	50	14	90	9,68	9,37	8,88	8,19	7,3
0,25	50	15	50	10,74	10,82	10,80	10,63	10,29
0,25	50	15	60	10,48	10,47	10,32	10,00	9,49
0,25	50	15	70	10,23	10,12	9,85	9,40	8,74
0,25	50	15	80	9,97	9,77	9,39	8,81	8,02
0,25	50	15	90	9,71	9,42	8,94	8,24	7,34
0,25	50	16	50	10,70	10,83	10,84	10,71	10,4
0,25	50	16	60	10,45	10,47	10,35	10,06	9,57
0,25	50	16	70	10,19	10,11	9,87	9,44	8,79
0,25	50	16	80	9,93	9,76	9,40	8,83	8,05
0,25	50	16	90	9,67	9,41	8,94	8,25	7,35

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
0,25	60	12	50	13,11	13,2	13,2	13,11	12,89
0,25	60	12	60	12,88	12,88	12,77	12,55	12,18
0,25	60	12	70	12,64	12,55	12,34	11,99	11,48
0,25	60	12	80	12,39	12,22	11,91	11,44	10,79
0,25	60	12	90	12,15	11,89	11,47	10,88	10,09
0,25	60	13	50	13,24	13,36	13,39	13,31	13,09
0,25	60	13	60	13	13,04	12,96	12,75	12,38
0,25	60	13	70	12,77	12,71	12,53	12,2	11,7
0,25	60	13	80	12,53	12,39	12,11	11,67	11,04
0,25	60	13	90	12,29	12,07	11,69	11,14	10,39
0,25	60	14	50	13,29	13,44	13,5	13,44	13,22
0,25	60	14	60	13,05	13,12	13,06	12,86	12,49
0,25	60	14	70	12,82	12,79	12,63	12,31	11,79
0,25	60	14	80	12,58	12,47	12,21	11,76	11,12
0,25	60	14	90	12,34	12,15	11,78	11,23	10,47
0,25	60	15	50	13,26	13,45	13,55	13,51	13,33
0,25	60	15	60	13,03	13,13	13,10	12,93	12,57
0,25	60	15	70	12,79	12,8	12,66	12,35	11,85
0,25	60	15	80	12,55	12,47	12,23	11,79	11,15
0,25	60	15	90	12,31	12,15	11,8	11,25	10,49
0,25	60	16	50	13,13	13,38	13,52	13,56	13,44
0,25	60	16	60	12,89	13,05	13,08	12,96	12,66
0,25	60	16	70	12,66	12,72	12,63	12,36	11,9
0,25	60	16	80	12,42	12,39	12,19	11,79	11,17
0,25	60	16	90	12,18	12,06	11,75	11,23	10,48

Table D.1 (*continued*)

Volumetric airflow	Drying air temperature	Final moisture content of grain	Relative humidity of ambient air	Net evaporation g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
0,25	70	12	50	15,84	16,01	16,11	16,12	16,01
0,25	70	12	60	15,62	15,71	15,71	15,6	15,35
0,25	70	12	70	15,4	15,41	15,31	15,08	14,7
0,25	70	12	80	15,17	15,1	14,91	14,57	14,07
0,25	70	12	90	14,94	14,79	14,51	14,07	13,45
0,25	70	13	50	15,92	16,13	16,26	16,29	16,19
0,25	70	13	60	15,7	15,83	15,86	15,76	15,51
0,25	70	13	70	15,48	15,53	15,46	15,24	14,86
0,25	70	13	80	15,26	15,23	15,06	14,73	14,23
0,25	70	13	90	15,03	14,92	14,66	14,23	13,61
0,25	70	14	50	15,92	16,16	16,33	16,39	16,3
0,25	70	14	60	15,7	15,86	15,92	15,85	15,61
0,25	70	14	70	15,48	15,56	15,52	15,32	14,94
0,25	70	14	80	15,26	15,26	15,11	14,79	14,29
0,25	70	14	90	15,03	14,95	14,71	14,28	13,65
0,25	70	15	50	15,82	16,11	16,32	16,43	16,4
0,25	70	15	60	15,6	15,81	15,91	15,87	15,68
0,25	70	15	70	15,38	15,5	15,49	15,33	14,98
0,25	70	15	80	15,15	15,2	15,09	14,8	14,31
0,25	70	15	90	14,93	14,89	14,68	14,27	13,65
0,25	70	16	50	15,57	15,92	16,22	16,41	16,47
0,25	70	16	60	15,35	15,62	15,79	15,84	15,73
0,25	70	16	70	15,13	15,31	15,38	15,28	15,01
0,25	70	16	80	14,91	15,01	14,96	14,74	14,3
0,25	70	16	90	14,69	14,7	14,55	14,2	13,63

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
0,25	80	12	50	18,6	18,86	19,06	19,16	19,16
0,25	80	12	60	18,4	18,58	18,68	18,67	18,53
0,25	80	12	70	18,19	18,30	18,3	18,18	17,92
0,25	80	12	80	17,98	18,01	17,93	17,7	17,32
0,25	80	12	90	17,76	17,72	17,55	17,22	16,73
0,25	80	13	50	18,64	18,93	19,16	19,29	19,31
0,25	80	13	60	18,43	18,65	18,78	18,8	18,66
0,25	80	13	70	18,23	18,37	18,4	18,3	18,04
0,25	80	13	80	18,02	18,08	18,03	17,81	17,43
0,25	80	13	90	17,8	17,8	17,65	17,33	16,83
0,25	80	14	50	18,57	18,91	19,18	19,35	19,4
0,25	80	14	60	18,36	18,62	18,79	18,84	18,74
0,25	80	14	70	18,16	18,34	18,41	18,34	18,09
0,25	80	14	80	17,95	18,06	18,03	17,84	17,46
0,25	80	14	90	17,74	17,77	17,64	17,34	16,85
0,25	80	15	50	18,38	18,78	19,11	19,34	19,47
0,25	80	15	60	18,17	18,48	18,71	18,82	18,78
0,25	80	15	70	17,97	18,2	18,32	18,3	18,11
0,25	80	15	80	17,76	17,91	17,94	17,91	17,46
0,25	80	15	90	17,55	17,62	17,54	17,28	16,82
0,25	80	16	50	18	18,47	18,90	19,24	19,48
0,25	80	16	60	17,79	18,18	18,5	18,71	18,76
0,25	80	16	70	17,59	17,9	18,11	18,17	18,08
0,25	80	16	80	17,38	17,61	17,71	17,65	17,41
0,25	80	16	90	17,18	17,32	17,32	17,13	16,74

Table D.1 (*continued*)

Volumetric airflow	Drying air temperature	Final moisture content of grain	Relative humidity of ambient air	Net evaporation g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
0,25	90	12	50	21,4	21,74	22,02	22,22	22,31
0,25	90	12	60	21,21	21,47	21,66	21,75	21,71
0,25	90	12	70	21,01	21,21	21,31	21,29	21,13
0,25	90	12	80	20,81	20,93	20,95	20,83	20,55
0,25	90	12	90	20,61	20,66	20,59	20,37	19,99
0,25	90	13	50	21,37	21,75	22,07	22,31	22,43
0,25	90	13	60	21,18	21,49	21,72	21,83	21,82
0,25	90	13	70	20,99	21,22	21,35	21,36	21,22
0,25	90	13	80	20,79	20,95	20,99	20,89	20,63
0,25	90	13	90	20,59	20,68	20,63	20,43	20,04
0,25	90	14	50	21,23	21,66	22,03	22,32	22,5
0,25	90	14	60	21,04	21,39	21,66	21,83	21,86
0,25	90	14	70	20,85	21,12	21,3	21,35	21,24
0,25	90	14	80	20,65	20,85	20,94	20,87	20,63
0,25	90	14	90	20,45	20,58	20,57	20,39	20,03
0,25	90	15	50	20,94	21,42	21,86	22,22	22,52
0,25	90	15	60	20,75	21,16	21,5	21,74	21,86
0,25	90	15	70	20,56	20,89	21,13	21,25	21,22
0,25	90	15	80	20,36	20,62	20,77	20,77	20,59
0,25	90	15	90	20,16	20,34	20,4	20,28	19,97
0,25	90	16	50	20,41	20,99	21,55	22,04	22,46
0,25	90	16	60	20,23	20,73	21,16	21,53	21,77
0,25	90	16	70	20,03	20,46	20,8	21,03	21,1
0,25	90	16	80	19,85	20,18	20,42	20,53	20,46
0,25	90	16	90	19,65	19,91	20,05	20,03	19,82

Table D.1 (*continued*)

Volumetric airflow	Drying air temperature	Final moisture content of grain	Relative humidity of ambient air	Net evaporation g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
0,5	50	12	50	9,4	9,4	9,32	9,13	8,83
0,5	50	12	60	9,2	9,1	8,91	8,59	8,1
0,5	50	12	70	8,98	8,8	8,49	8,01	7,32
0,5	50	12	80	8,74	8,47	8,04	7,40	6,39
0,5	50	12	90	8,5	8,13	7,56	6,67	a
0,5	50	13	50	9,73	9,77	9,73	9,59	9,32
0,5	50	13	60	9,52	9,48	9,34	9,06	8,63
0,5	50	13	70	9,31	9,19	8,93	8,53	7,94
0,5	50	13	80	9,09	8,88	8,52	7,99	7,24
0,5	50	13	90	8,86	8,57	8,1	7,42	6,48
0,5	50	14	50	9,95	10,02	10,02	9,91	9,66
0,5	50	14	60	9,74	9,73	9,63	9,38	8,97
0,5	50	14	70	9,53	9,44	9,23	8,85	8,3
0,5	50	14	80	9,31	9,14	8,82	8,33	7,62
0,5	50	14	90	9,09	8,83	8,41	7,79	6,95
0,5	50	15	50	10,06	10,18	10,22	10,14	9,91
0,5	50	15	60	9,85	9,89	9,81	9,6	9,2
0,5	50	15	70	9,64	9,59	9,41	9,06	8,51
0,5	50	15	80	9,42	9,29	9,01	8,53	7,84
0,5	50	15	90	9,2	8,98	8,59	8	7,18
0,5	50	16	50	10,06	10,23	10,32	10,28	10,09
0,5	50	16	60	9,85	9,94	9,91	9,73	9,36
0,5	50	16	70	9,64	9,64	9,5	9,18	8,65
0,5	50	16	80	9,42	9,33	9,09	8,64	7,95
0,5	50	16	90	9,2	9,03	8,67	8,1	7,28

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
0,5	60	12	50	12,2	12,28	12,31	12,24	12,07
0,5	60	12	60	12,01	12,02	11,94	11,75	11,43
0,5	60	12	70	11,81	11,74	11,57	11,26	10,79
0,5	60	12	80	11,6	11,46	11,18	10,75	10,13
0,5	60	12	90	11,39	11,16	10,78	10,22	9,44
0,5	60	13	50	12,43	12,57	12,63	12,61	12,47
0,5	60	13	60	12,24	12,3	12,27	12,13	11,84
0,5	60	13	70	12,05	12,03	11,9	11,64	11,22
0,5	60	13	80	11,85	11,75	11,53	11,15	10,59
0,5	60	13	90	11,64	11,46	11,15	10,66	9,97
0,5	60	14	50	12,55	12,73	12,84	12,86	12,75
0,5	60	14	60	12,36	12,46	12,48	12,37	12,11
0,5	60	14	70	12,17	12,19	12,11	11,88	11,48
0,5	60	14	80	11,97	11,91	11,73	11,39	10,86
0,5	60	14	90	11,76	11,63	11,36	10,9	10,24
0,5	60	15	50	12,56	12,79	12,95	13,01	12,94
0,5	60	15	60	12,37	12,52	12,57	12,51	12,28
0,5	60	15	70	12,17	12,24	12,2	12,01	11,64
0,5	60	15	80	11,97	11,97	11,83	11,52	11
0,5	60	15	90	11,77	11,68	11,45	11,02	10,38
0,5	60	16	50	12,42	12,71	12,94	13,06	13,05
0,5	60	16	60	12,22	12,43	12,56	12,56	12,38
0,5	60	16	70	12,03	12,16	12,18	12,04	11,71
0,5	60	16	80	11,83	11,88	11,8	11,54	11,06
0,5	60	16	90	11,63	11,6	11,42	11,04	10,42

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
0,5	70	12	50	14,98	15,16	15,29	15,34	15,29
0,5	70	12	60	14,81	14,91	14,95	14,89	14,7
0,5	70	12	70	14,62	14,66	14,6	14,43	14,12
0,5	70	12	80	14,43	14,4	14,26	13,97	13,53
0,5	70	12	90	14,24	14,13	13,9	13,51	12,94
0,5	70	13	50	15,13	15,36	15,53	15,63	15,61
0,5	70	13	60	14,95	15,11	15,19	15,17	15,03
0,5	70	13	70	14,77	14,86	14,85	14,72	14,45
0,5	70	13	80	14,58	14,6	14,5	14,27	13,87
0,5	70	13	90	14,39	14,33	14,15	13,81	13,29
0,5	70	14	50	15,15	15,43	15,66	15,8	15,83
0,5	70	14	60	14,98	15,18	15,32	15,34	15,23
0,5	70	14	70	14,79	14,93	14,97	14,89	14,64
0,5	70	14	80	14,61	14,67	14,62	14,43	14,06
0,5	70	14	90	14,42	14,41	14,27	13,97	13,47
0,5	70	15	50	15,05	15,38	15,67	15,87	15,96
0,5	70	15	60	14,87	15,13	15,32	15,4	15,34
0,5	70	15	70	14,69	14,87	14,97	14,94	14,74
0,5	70	15	80	14,5	14,62	14,62	14,48	14,14
0,5	70	15	90	14,31	14,36	14,27	14,01	13,54
0,5	70	16	50	14,76	15,15	15,52	15,81	15,98
0,5	70	16	60	14,57	14,91	15,17	15,34	15,35
0,5	70	16	70	14,4	14,65	14,82	14,86	14,74
0,5	70	16	80	14,22	14,4	14,48	14,4	14,12
0,5	70	16	90	14,03	14,14	14,12	13,93	13,51

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
0,5	80	12	50	17,75	18,02	18,25	18,41	18,48
0,5	80	12	60	17,59	17,79	17,93	17,99	17,93
0,5	80	12	70	17,41	17,55	17,61	17,57	17,39
0,5	80	12	80	17,24	17,31	17,28	17,14	16,85
0,5	80	12	90	17,05	17,06	16,95	16,7	16,3
0,5	80	13	50	17,81	18,13	18,41	18,63	18,74
0,5	80	13	60	17,64	17,9	18,09	18,2	18,19
0,5	80	13	70	17,47	17,66	17,78	17,78	17,64
0,5	80	13	80	17,3	17,42	17,45	17,35	17,1
0,5	80	13	90	17,12	17,18	17,12	16,92	16,56
0,5	80	14	50	17,74	18,11	18,45	18,72	18,9
0,5	80	14	60	17,58	17,88	18,13	18,30	18,34
0,5	80	14	70	17,4	17,65	17,81	17,87	17,78
0,5	80	14	80	17,23	17,41	17,49	17,44	17,22
0,5	80	14	90	17,05	17,16	17,16	17,01	16,67
0,5	80	15	50	17,52	17,95	18,36	18,7	18,95
0,5	80	15	60	17,35	17,72	18,04	18,26	18,37
0,5	80	15	70	17,19	17,49	17,72	17,84	17,81
0,5	80	15	80	17,01	17,25	17,39	17,4	17,24
0,5	80	15	90	16,84	17	17,06	16,97	16,68
0,5	80	16	50	17,07	17,59	18,09	18,53	18,89
0,5	80	16	60	16,91	17,36	17,77	18,09	18,28
0,5	80	16	70	17,74	17,11	17,43	17,64	17,71
0,5	80	16	80	16,58	16,88	17,1	17,2	17,11
0,5	80	16	90	16,41	16,65	16,77	16,75	16,55

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
0,5	90	12	50	20,5	20,86	21,18	21,45	21,65
0,5	90	12	60	20,35	20,64	20,89	21,06	21,14
0,5	90	12	70	20,19	20,42	20,59	20,27	20,63
0,5	90	12	80	20,02	20,2	20,29	20,27	20,11
0,5	90	12	90	19,85	19,96	19,97	19,86	19,6
0,5	90	13	50	20,48	20,89	21,27	21,6	21,84
0,5	90	13	60	20,32	20,68	20,98	21,2	21,33
0,5	90	13	70	20,17	20,46	20,68	20,81	20,82
0,5	90	13	80	20	20,23	20,38	20,41	20,3
0,5	90	13	90	19,83	20	20,07	20,01	19,79
0,5	90	14	50	20,32	20,78	21,23	21,62	21,93
0,5	90	14	60	20,16	20,57	20,93	21,22	21,41
0,5	90	14	70	20,01	20,35	20,64	20,82	20,88
0,5	90	14	80	19,84	20,13	20,33	20,42	20,36
0,5	90	14	90	19,68	19,9	20,02	20,01	19,83
0,5	90	15	50	19,99	20,51	21,03	21,51	21,91
0,5	90	15	60	19,83	20,3	20,74	21,1	21,36
0,5	90	15	70	19,68	20,07	20,44	20,7	20,83
0,5	90	15	80	19,51	19,86	20,12	20,29	20,29
0,5	90	15	90	19,35	19,63	19,82	19,88	19,75
0,5	90	16	50	19,39	19,99	20,62	21,21	21,73
0,5	90	16	60	19,23	19,78	20,32	20,8	21,17
0,5	90	16	70	19,08	19,55	20	20,39	20,62
0,5	90	16	80	18,92	19,34	19,7	19,95	20,06
0,5	90	16	90	18,75	19,11	19,4	19,54	19,51

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
1	50	12	50	7,36	7,36	7,3	7,17	6,95
1	50	12	60	7,21	7,15	7,01	6,77	6,4
1	50	12	70	7,05	6,93	6,7	6,33	5,76
1	50	12	80	6,88	6,68	6,35	5,83	4,96
1	50	12	90	6,69	6,4	5,95	5,2	a
1	50	13	50	7,77	7,81	7,8	7,72	7,55
1	50	13	60,	7,63	7,61	7,53	7,35	7,05
1	50	13	70	7,48	7,41	7,24	6,96	6,52
1	50	13	80	7,32	7,18	6,93	6,53	5,92
1	50	13	90	7,14	6,94	6,59	6,06	5,24
1	50	14	50	8,09	8,17	8,2	8,16	8,03
1	50	14	60	7,95	7,98	7,93	7,8	7,55
1	50	14	70	7,8	7,77	7,66	7,42	7,03
1	50	14	80	7,65	7,56	7,36	7,02	6,49
1	50	14	90	7,48	7,33	7,04	6,59	5,91
1	50	15	50	8,33	8,46	8,53	8,52	8,43
1	50	15	60	8,19	8,26	8,26	8,17	7,94
1	50	15	70	8,04	8,06	7,98	7,79	7,43
1	50	15	80	7,89	7,84	7,69	7,39	6,9
1	50	15	90	7,73	7,61	7,38	6,97	6,35
1	50	16	50	8,47	8,65	8,77	8,81	8,75
1	50	16	60	8,32	8,45	8,5	8,45	8,26
1	50	16	70	8,18	8,24	8,22	8,06	7,74
1	50	16	80	8,03	8,03	7,92	7,66	7,2
1	50	16	90	7,87	7,8	7,61	7,24	6,64

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
1	60	12	50	10,1	10,18	10,22	10,19	10,09
1	60	12	60	9,96	9,99	9,96	9,84	9,62
1	60	12	70	9,82	9,79	9,69	9,47	9,12
1	60	12	80	9,67	9,58	9,4	9,07	8,58
1	60	12	90	9,51	9,35	9,08	8,64	7,97
1	60	13	50	10,47	10,59	10,69	10,71	10,66
1	60	13	60	10,34	10,41	10,43	10,37	10,21
1	60	13	70	10,2	10,22	10,17	10,02	9,74
1	60	13	80	10,06	10,02	9,89	9,65	9,25
1	60	13	90	9,9	9,8	9,6	9,25	8,72
1	60	14	50	10,73	10,91	11,04	11,12	11,11
1	60	14	60	10,6	10,72	10,8	10,79	10,67
1	60	14	70	10,47	10,53	10,54	10,43	10,2
1	60	14	80	10,32	10,33	10,26	10,07	9,71
1	60	14	90	10,17	10,12	9,97	9,69	9,2
1	60	15	50	10,88	11,11	11,3	11,43	11,47
1	60	15	60	10,75	10,93	11,05	11,09	11,02
1	60	15	70	10,62	10,73	10,79	10,74	10,54
1	60	15	80	10,47	10,54	10,51	10,37	10,05
1	60	15	90	10,32	10,33	10,23	9,98	9,54
1	60	16	50	10,88	11,18	11,44	11,61	11,72
1	60	16	60	10,75	10,98	11,17	11,26	11,24
1	60	16	70	10,61	10,79	10,9	10,9	10,76
1	60	16	80	10,47	10,59	10,62	10,53	10,26
1	60	16	90	10,32	10,38	10,34	10,14	9,75

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
1	70	12	50	12,95	13,12	13,26	13,34	13,36
1	70	12	60	12,83	12,95	13,02	13,03	12,94
1	70	12	70	12,7	12,77	12,77	12,69	12,5
1	70	12	80	12,57	12,58	12,51	12,34	12,03
1	70	12	90	12,42	12,38	12,23	11,96	11,54
1	70	13	50	12,25	13,47	13,66	13,81	13,88
1	70	13	60	13,13	13,3	13,43	13,49	13,46
1	70	13	70	13,01	13,12	13,18	13,16	13,03
1	70	13	80	12,87	12,94	12,93	12,82	12,58
1	70	13	90	12,73	12,74	12,66	12,46	12,11
1	70	14	50	13,43	13,7	13,95	14,15	14,27
1	70	14	60	13,31	13,53	13,71	13,83	13,85
1	70	14	70	13,18	13,35	13,47	13,5	13,41
1	70	14	80	13,05	13,16	13,21	13,15	12,96
1	70	14	90	12,91	12,97	12,95	12,8	12,49
1	70	15	50	13,46	13,79	14,1	14,35	14,55
1	70	15	60	13,33	13,61	13,85	14,03	14,1
1	70	15	70	13,2	13,43	13,6	13,69	13,65
1	70	15	80	13,07	13,24	13,34	13,34	13,19
1	70	15	90	12,93	13,05	13,08	12,98	12,72
1	70	16	50	13,29	13,68	14,06	14,39	14,66
1	70	16	60	13,16	13,49	13,81	14,05	14,21
1	70	16	70	13,02	13,31	13,55	13,71	13,74
1	70	16	80	12,89	13,12	13,29	13,36	13,27
1	70	16	90	12,75	12,93	13,02	12,99	12,79

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
1	80	12	50	15,83	16,09	16,32	16,53	16,66
1	80	12	60	15,72	15,93	16,1	16,23	16,27
1	80	12	70	15,6	15,76	15,87	15,92	15,86
1	80	12	80	15,47	15,58	15,63	15,59	15,45
1	80	12	90	15,33	15,4	15,38	15,25	14,99
1	80	13	50	16,05	16,36	16,65	16,91	17,11
1	80	13	60	15,93	16,19	16,43	16,61	16,71
1	80	13	70,	15,81	16,03	15,2	16,3	16,3
1	80	13	80	15,69	15,85	15,96	15,98	15,88
1	80	13	90	15,56	15,67	15,71	15,64	15,45
1	80	14	50	16,11	16,47	16,83	17,15	17,4
1	80	14	60	16	16,31	16,6	16,85	17
1	80	14	70	15,87	16,14	16,37	16,53	16,58
1	80	14	80	15,75	15,97	16,13	16,21	16,16
1	80	14	90	15,62	15,79	15,88	15,87	15,72
1	80	15	50	15,99	16,43	16,84	17,23	17,57
1	80	15	60	15,88	16,25	16,6	16,92	17,13
1	80	15	70	15,75	16,08	16,37	16,58	16,71
1	80	15	80	15,63	15,91	16,12	16,26	16,28
1	80	15	90	15,5	15,72	15,88	15,93	15,83
1	80	16	50	15,62	16,12	16,61	17,11	17,52
1	80	16	60	15,5	15,94	16,39	16,76	17,09
1	80	16	70	15,37	15,78	16,13	16,44	16,62
1	80	16	80	15,26	15,59	15,87	16,1	16,19
1	80	16	90	15,13	15,4	15,63	15,76	15,74

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
1	90	12	50	18,69	19,03	19,36	19,67	19,94
1	90	12	60	18,58	18,88	19,16	19,39	19,56
1	90	12	70	18,47	18,72	18,94	19,1	19,18
1	90	12	80	18,35	18,56	18,72	18,8	18,78
1	90	12	90	18,22	18,38	18,48	18,49	18,37
1	90	13	50	18,8	19,2	19,59	19,97	20,29
1	90	13	60	18,69	19,05	19,38	19,68	19,91
1	90	13	70	18,58	18,89	19,17	19,39	19,52
1	90	13	80	18,46	18,73	18,94	19,09	19,13
1	90	13	90	18,34	18,56	18,71	18,77	18,72
1	90	14	50	18,75	19,2	19,65	20,1	20,48
1	90	14	60	18,63	19,04	19,45	19,8	20,1
1	90	14	70	18,52	18,89	19,22	19,51	19,69
1	90	14	80	18,4	18,72	18,99	19,2	19,29
1	90	14	90	18,28	18,55	18,76	18,88	18,88
1	90	15	50	18,47	19	19,51	20,05	20,5
1	90	15	60	18,36	18,83	19,31	19,73	20,11
1	90	15	70	18,24	18,68	19,07	19,41	19,69
1	90	15	80	18,12	18,51	18,84	19,11	19,29
1	90	15	90	18,01	18,33	18,61	18,79	18,85
1	90	16	50	17,91	18,49	19,13	19,74	20,28
1	90	16	60	17,78	18,35	18,9	19,38	19,9
1	90	16	70	17,66	18,18	18,65	19,1	19,45
1	90	16	80	17,57	18	18,4	18,77	19,04
1	90	16	90	17,44	17,82	18,19	18,43	18,58

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
1,5	50	12	50	5,97	5,97	5,9	5,79	5,62
1,5	50	12	60	5,86	5,81	5,69	5,49	5,19
1,5	50	12	70	5,74	5,63	5,44	5,14	4,68
1,5	50	12	80	5,6	5,43	5,16	4,73	3,99
1,5	50	12	90	5,44	5,2	4,81	4,18	a
1,5	50	13	50	6,37	6,39	6,37	6,3	6,18
1,5	50	13	60	6,26	6,24	6,17	6,03	5,8
1,5	50	13	70	6,14	6,08	5,95	5,73	5,38
1,5	50	13	80	6,01	5,9	5,7	5,38	4,89
1,5	50	13	90	5,87	5,7	5,42	4,98	4,29
1,5	50	14	50	6,69	6,75	6,76	6,73	6,64
1,5	50	14	60	6,58	6,6	6,57	6,47	6,28
1,5	50	14	70	6,47	6,44	6,36	6,18	5,89
1,5	50	14	80	6,35	6,28	6,13	5,87	5,46
1,5	50	14	90	6,21	6,09	5,87	5,51	4,97
1,5	50	15	50	6,95	7,04	7,09	7,09	7,04
1,5	50	15	60	6,84	6,9	6,9	6,84	6,69
1,5	50	15	70	6,73	6,75	6,7	6,56	6,31
1,5	50	15	80	6,61	6,58	6,47	6,26	5,89
1,5	50	15	90	6,48	6,4	6,22	5,92	5,43
1,5	50	16	50	7,13	7,27	7,35	7,4	7,38
1,5	50	16	60	7,02	7,13	7,17	7,14	7,03
1,5	50	16	70	6,91	6,97	6,97	6,87	6,66
1,5	50	16	80	6,79	6,8	6,74	6,57	6,25
1,5	50	16	90	6,66	6,63	6,5	6,24	5,8

Table D.1 (*continued*)

Volumetric airflow	Drying air temperature	Final moisture content of grain	Relative humidity of ambient air	Net evaporation g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
1,5	60	12	50	8,5	8,56	8,59	8,56	8,47
1,5	60	12	60	8,4	8,42	8,39	8,3	8,11
1,5	60	12	70	8,29	8,26	8,18	8	7,72
1,5	60	12	80	8,17	8,09	7,94	7,68	7,27
1,5	60	12	90	8,03	7,9	7,67	7,31	6,76
1,5	60	13	50	8,89	8,99	9,06	9,08	9,04
1,5	60	13	60	8,79	8,85	8,87	8,83	8,71
1,5	60	13	70	8,68	8,7	8,67	8,56	8,34
1,5	60	13	80	8,57	8,54	8,45	8,26	7,95
1,5	60	13	90	8,44	8,36	8,2	7,93	7,5
1,5	60	14	50	9,19	9,33	9,45	9,51	9,52
1,5	60	14	60	9,09	9,19	9,26	9,27	9,19
1,5	60	14	70	8,99	9,05	9,06	9	8,84
1,5	60	14	80	8,87	8,89	8,85	8,72	8,46
1,5	60	14	90	8,75	8,72	8,62	8,41	8,05
1,5	60	15	50	9,4	9,59	9,75	9,86	9,91
1,5	60	15	60	9,3	9,45	9,56	9,62	9,59
1,5	60	15	70	9,19	9,3	9,37	9,36	9,24
1,5	60	15	80	9,08	9,14	9,15	9,07	8,87
1,5	60	15	90	8,96	8,98	8,92	8,77	8,46
1,5	60	16	50	9,49	9,73	9,96	10,11	10,21
1,5	60	16	60	9,38	9,59	9,76	9,87	9,89
1,5	60	16	70	9,27	9,44	9,56	9,61	9,54
1,5	60	16	80	9,16	9,28	9,34	9,32	9,16
1,5	60	16	90	9,04	9,11	9,11	9,01	8,76

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
1,5	70	12	50	11,26	11,39	11,5	11,58	11,6
1,5	70	12	60	11,16	11,26	11,32	11,34	11,28
1,5	70	12	70	11,06	11,12	11,13	11,08	10,93
1,5	70	12	80	10,95	10,96	10,92	10,79	10,55
1,5	70	12	90	10,83	10,8	10,68	10,48	10,13
1,5	70	13	50	11,6	11,79	11,95	12,08	12,15
1,5	70	13	60	11,51	11,65	11,77	11,85	11,85
1,5	70	13	70	11,41	11,52	11,58	11,59	11,52
1,5	70	13	80	11,3	11,37	11,38	11,32	11,16
1,5	70	13	90	11,19	11,21	11,16	11,03	10,77
1,5	70	14	50	11,84	12,08	12,29	12,48	12,06
1,5	70	14	60	11,75	11,94	12,11	12,24	12,3
1,5	70	14	70	11,65	11,8	11,92	11,99	11,97
1,5	70	14	80	11,54	11,66	11,73	11,72	11,62
1,5	70	14	90	11,43	11,5	11,51	11,44	11,23
1,5	70	15	50	11,96	12,24	12,52	12,76	12,94
1,5	70	15	60	11,86	12,11	12,33	12,53	12,64
1,5	70	15	70	11,76	11,96	12,14	12,27	12,3
1,5	70	15	80	11,65	11,82	11,94	12	11,95
1,5	70	15	90	11,54	11,66	11,73	11,71	11,57
1,5	70	16	50	11,9	12,24	12,6	12,91	13,16
1,5	70	16	60	11,79	12,09	12,39	12,65	12,83
1,5	70	16	70	11,68	11,96	12,19	12,39	12,49
1,5	70	16	80	11,57	11,8	11,99	12,1	11,12
1,5	70	16	90	11,47	11,65	11,78	11,82	11,74

Table D.1 (*continued*)

Volumetric airflow	Drying air temperature	Final moisture content of grain	Relative humidity of ambient air	Net evaporation g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
1,5	80	12	50	14,11	14,33	14,54	14,72	14,86
1,5	80	12	60	14,02	14,2	14,37	14,49	14,56
1,5	80	12	70	13,92	14,07	14,18	14,25	14,24
1,5	80	12	80	13,82	13,93	14	14	13,9
1,5	80	12	90	13,71	13,78	13,79	13,72	13,53
1,5	80	13	50	14,39	14,66	14,93	15,17	15,37
1,5	80	13	60	14,3	14,54	14,75	14,95	15,08
1,5	80	13	70	14,21	14,41	14,58	14,71	14,76
1,5	80	13	80	14,11	14,27	14,39	14,45	14,43
1,5	80	13	90	14	14,12	14,2	14,19	14,07
1,5	80	14	50	14,54	14,87	15,19	15,5	15,76
1,5	80	14	60	14,45	14,74	15,01	15,26	15,46
1,5	80	14	70	14,35	14,61	14,84	15,02	15,14
1,5	80	14	80	14,25	14,47	14,65	14,77	14,81
1,5	80	14	90	14,15	14,32	14,45	14,51	14,46
1,5	80	15	50	14,53	14,91	15,31	15,68	16,02
1,5	80	15	60	14,43	14,77	15,12	15,43	15,69
1,5	80	15	70	14,33	14,64	14,93	15,19	15,36
1,5	80	15	80	14,23	14,5	14,74	14,93	15,03
1,5	80	15	90	14,13	14,36	14,54	14,66	14,67
1,5	80	16	50	14,28	14,73	15,18	15,67	16,04
1,5	80	16	60	14,18	14,59	15,01	15,39	15,75
1,5	80	16	70	14,08	14,44	14,81	15,12	15,39
1,5	80	16	80	13,97	14,3	14,61	14,87	15,05
1,5	80	16	90	13,87	14,16	14,4	14,59	14,67

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
1,5	90	12	50	16,98	17,29	17,59	17,89	18,15
1,5	90	12	60	16,89	17,17	17,43	17,67	17,86
1,5	90	12	70	16,81	17,05	17,27	17,44	17,57
1,5	90	12	80	16,72	16,92	17,09	17,21	17,26
1,5	90	12	90	16,61	16,78	16,9	16,96	16,92
1,5	90	13	50	17,18	17,54	17,91	18,27	18,59
1,5	90	13	60	17,09	17,42	17,74	18,05	18,31
1,5	90	13	70	17	17,3	17,58	17,82	18,01
1,5	90	13	80	16,91	17,17	17,4	17,58	17,69
1,5	90	13	90	16,81	17,03	17,22	17,34	17,37
1,5	90	14	50	17,21	17,64	18,06	18,5	18,88
1,5	90	14	60	17,13	17,52	17,9	18,26	18,6
1,5	90	14	70	17,04	17,39	17,73	18,03	18,28
1,5	90	14	80	16,95	17,26	17,55	17,8	17,97
1,5	90	14	90	16,85	17,13	17,36	17,55	17,64
1,5	90	15	50	17,06	17,53	18,04	18,53	19,03
1,5	90	15	60	16,96	17,4	17,87	18,28	18,7
1,5	90	15	70	16,87	17,29	17,68	18,06	18,37
1,5	90	15	80	16,78	17,15	17,49	17,81	18,06
1,5	90	15	90	16,67	17,01	17,31	17,55	17,72
1,5	90	16	50	16,59	17,17	17,73	18,34	18,9
1,5	90	16	60	16,5	17,03	17,53	18,09	18,54
1,5	90	16	70	16,4	16,89	17,34	17,81	18,24
1,5	90	16	80	16,32	16,75	17,18	17,54	17,88
1,5	90	16	90	16,22	16,6	16,99	17,31	17,52

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
2	50	12	50	5,02	5	4,94	4,85	4,7
2	50	12	60	4,93	4,88	4,77	4,6	4,35
2	50	12	70	4,83	4,73	4,57	4,31	3,91
2	50	12	80	4,71	4,56	4,33	3,96	3,32
2	50	12	90	4,57	4,37	4,03	3,48	a
2	50	13	50	5,38	5,39	5,36	5,31	5,2
2	50	13	60	5,29	5,28	5,2	5,09	4,9
2	50	13	70	5,2	5,14	5,03	4,83	4,55
2	50	13	80	5,1	5	4,82	4,55	4,13
2	50	13	90	4,97	4,82	4,58	4,2	3,6
2	50	14	50	5,69	5,72	5,72	5,69	5,62
2	50	14	60	5,6	5,61	5,57	5,49	5,34
2	50	14	70	5,51	5,49	5,41	5,26	5,02
2	50	14	80	5,41	5,35	5,22	5	4,66
2	50	14	90	5,3	5,18	5	4,7	4,24
2	50	15	50	5,94	6	6,03	6,03	5,99
2	50	15	60	5,86	5,89	5,88	5,83	5,72
2	50	15	70	5,77	5,77	5,73	5,61	5,42
2	50	15	80	5,67	5,64	5,55	5,37	5,08
2	50	15	90	5,56	5,49	5,34	5,09	4,69
2	50	16	50	6,13	6,22	6,28	6,31	6,31
2	50	16	60	6,05	6,12	6,14	6,12	6,05
2	50	16	70	5,96	6	5,99	5,92	5,75
2	50	16	80	5,86	5,87	5,82	5,68	5,43
2	50	16	90	5,75	5,72	5,62	5,41	5,06

Table D.1 (*continued*)

Volumetric airflow	Drying air temperature	Final moisture content of grain	Relative humidity of ambient air	Net evaporation g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
2	60	12	50	7,34	7,38	7,38	7,35	7,27
2	60	12	60	7,26	7,26	7,23	7,14	6,98
2	60	12	70	7,16	7,14	7,05	6,9	6,66
2	60	12	80	7,06	6,99	6,85	6,63	6,27
2	60	12	90	6,94	6,82	6,62	6,31	5,83
2	60	13	50	7,72	7,8	7,84	7,84	7,81
2	60	13	60	7,64	7,68	7,69	7,64	7,54
2	60	13	70	7,55	7,56	7,53	7,43	7,25
2	60	13	80	7,45	7,43	7,34	7,18	6,92
2	60	13	90	7,34	7,27	7,14	6,9	6,53
2	60	14	50	8,03	8,14	8,21	8,25	8,26
2	60	14	60	7,94	8,02	8,07	8,07	8,01
2	60	14	70	7,86	7,9	7,91	7,86	7,73
2	60	14	80	7,76	7,77	7,74	7,63	7,42
2	60	14	90	7,66	7,63	7,54	7,36	7,07
2	60	15	50	8,26	8,4	8,52	8,59	8,64
2	60	15	60	8,17	8,29	8,38	8,42	8,4
2	60	15	70	8,08	8,17	8,23	8,22	8,13
2	60	15	80	7,99	8,04	8,05	7,99	8,83
2	60	15	90	7,89	7,9	7,86	7,73	7,49
2	60	16	50	8,39	8,58	8,75	8,85	8,95
2	60	16	60	8,3	8,46	8,61	8,69	8,72
2	60	16	70	8,2	8,34	8,44	8,49	8,45
2	60	16	80	8,11	8,21	8,27	8,27	8,15
2	60	16	90	8,01	8,07	8,08	8,01	7,82

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
2	70	12	50	9,95	10,06	10,15	10,2	10,2
2	70	12	60	9,87	9,95	10	10,01	9,95
2	70	12	70	9,79	9,83	9,84	9,79	9,67
2	70	12	80	9,69	9,7	9,66	9,55	9,35
2	70	12	90	9,59	9,55	9,46	9,28	8,98
2	70	13	50	10,32	10,47	10,6	10,69	10,74
2	70	13	60	10,24	10,36	10,45	10,51	10,51
2	70	13	70	10,15	10,24	10,3	10,3	10,24
2	70	13	80	10,06	10,12	10,13	10,08	9,95
2	70	13	90	9,96	9,98	9,94	9,83	9,62
2	70	14	50	10,58	10,78	10,96	11,1	11,19
2	70	14	60	10,5	10,67	10,81	10,92	10,96
2	70	14	70	10,42	10,55	10,66	10,72	10,71
2	70	14	80	10,33	10,43	10,49	10,49	10,42
2	70	14	90	10,23	10,3	10,31	10,26	10,1
2	70	15	50	10,74	10,98	11,21	11,41	11,56
2	70	15	60	10,66	10,87	11,07	11,23	11,32
2	70	15	70	10,57	10,75	10,91	11,03	11,07
2	70	15	80	10,48	10,63	10,74	10,8	10,79
2	70	15	90	10,39	10,5	10,56	10,56	10,47
2	70	16	50	10,74	11,04	11,34	11,58	11,78
2	70	16	60	10,65	10,93	11,18	11,42	11,57
2	70	16	70	10,56	10,8	11,01	11,2	11,31
2	70	16	80	10,47	10,68	10,85	10,97	11,02
2	70	16	90	10,38	10,54	10,67	10,73	10,7

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
2	80	12	50	12,73	12,91	13,09	13,25	13,35
2	80	12	60	12,65	12,81	12,95	13,06	13,12
2	80	12	70	12,57	12,7	12,8	12,86	12,87
2	80	12	80	12,49	12,58	12,63	12,64	12,57
2	80	12	90	12,39	12,45	12,46	12,41	12,25
2	80	13	50	13,04	13,28	13,5	13,72	13,88
2	80	13	60	12,97	13,17	13,36	13,53	13,66
2	80	13	70	12,89	13,06	13,21	13,33	13,41
2	80	13	80	12,8	12,95	13,06	13,13	13,13
2	80	13	90	12,71	12,82	12,88	12,89	12,82
2	80	14	50	13,23	13,52	13,8	14,08	14,29
2	80	14	60	13,16	13,41	13,66	13,89	14,07
2	80	14	70	13,08	13,3	13,51	13,69	13,82
2	80	14	80	12,99	13,19	13,35	13,48	13,54
2	80	14	90	12,9	13,06	13,19	13,26	13,25
2	80	15	50	13,28	13,62	13,96	14,3	14,59
2	80	15	60	13,2	13,51	13,82	14,1	14,35
2	80	15	70	13,12	13,39	13,66	13,91	14,09
2	80	15	80	13,03	13,28	13,5	13,69	13,82
2	80	15	90	12,94	13,15	13,33	13,46	13,52
2	80	16	50	13,12	13,52	13,94	14,34	14,69
2	80	16	60	13,03	13,41	13,78	14,14	14,44
2	80	16	70	12,95	13,29	13,61	13,92	14,2
2	80	16	80	12,85	13,16	13,44	13,69	13,9
2	80	16	90	12,76	13,04	13,28	13,47	13,59

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
2	90	12	50	15,57	15,84	16,11	16,37	16,61
2	90	12	60	15,5	15,74	15,97	16,19	16,38
2	90	12	70	15,42	15,64	15,83	16	16,13
2	90	12	80	15,34	15,53	15,69	15,81	15,87
2	90	12	90	15,26	15,41	15,52	15,59	15,59
2	90	13	50	15,81	16,14	16,46	16,79	17,09
2	90	13	60	15,74	16,04	16,33	16,61	16,86
2	90	13	70	15,67	15,93	16,19	16,42	16,61
2	90	13	80	15,59	15,82	16,04	16,22	16,36
2	90	13	90	15,51	15,71	15,88	16,01	16,07
2	90	14	50	15,91	16,28	16,68	17,06	17,43
2	90	14	60	15,83	16,18	16,53	16,88	17,18
2	90	14	70	15,76	16,08	16,39	16,68	16,94
2	90	14	80	15,68	15,97	16,24	16,48	16,68
2	90	14	90	15,59	15,85	16,08	16,28	16,41
2	90	15	50	15,82	16,25	16,72	17,16	17,61
2	90	15	60	15,74	16,14	16,56	16,98	17,35
2	90	15	70	15,66	16,04	16,41	16,78	17,09
2	90	15	80	15,58	15,93	16,25	16,57	16,84
2	90	15	90	15,49	15,81	16,1	16,35	16,55
2	90	16	50	15,47	15,96	16,5	17,02	17,57
2	90	16	60	15,38	15,84	16,34	16,85	17,28
2	90	16	70	15,3	15,75	16,16	16,63	17,04
2	90	16	80	15,21	15,63	16	16,4	16,75
2	90	16	90	15,12	15,5	15,84	16,16	16,44

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
2,5	50	12	50	4,33	4,3	4,25	4,17	4,04
2,5	50	12	60	4,25	4,2	4,1	3,96	3,74
2,5	50	12	70	4,16	4,08	3,93	3,71	3,37
2,5	50	12	80	4,06	3,94	3,73	3,4	2,84
2,5	50	12	90	3,94	3,76	3,47	2,97	a
2,5	50	13	50	4,66	4,66	4,63	4,58	4,49
2,5	50	13	60	4,59	4,56	4,5	4,39	4,23
2,5	50	13	70	4,51	4,46	4,35	4,18	3,93
2,5	50	13	80	4,42	4,33	4,18	3,94	3,57
2,5	50	13	90	4,31	4,17	3,96	3,63	3,1
2,5	50	14	50	4,94	4,96	4,95	4,93	4,87
2,5	50	14	60	4,88	4,87	4,83	4,76	4,63
2,5	50	14	70	4,8	4,77	4,7	4,57	4,36
2,5	50	14	80	4,71	4,65	4,54	4,35	4,05
2,5	50	14	90	4,61	4,51	4,35	4,08	3,68
2,5	50	15	50	5,18	5,22	5,24	4,24	5,21
2,5	50	15	60	5,11	5,13	5,12	5,07	4,98
2,5	50	15	70	5,04	5,04	4,99	4,89	4,73
2,5	50	15	80	4,96	4,92	4,84	4,69	4,44
2,5	50	15	90	4,86	4,79	4,66	4,45	4,11
2,5	50	16	50	5,38	5,43	5,48	5,5	5,5
2,5	50	16	60	5,31	5,35	5,37	5,35	4,28
2,5	50	16	70	5,23	5,26	5,24	5,18	5,04
2,5	50	16	80	5,15	5,15	5,1	4,98	4,77
2,5	50	16	90	5,06	5,02	4,93	4,76	4,45

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
2,5	60	12	50	6,46	6,49	6,47	6,44	6,37
2,5	60	12	60	6,39	6,39	6,35	6,26	6,12
2,5	60	12	70	6,31	6,28	6,2	6,06	5,84
2,5	60	12	80	6,22	6,15	6,02	5,83	5,51
2,5	60	12	90	6,11	6	5,83	5,54	5,1
2,5	60	13	50	6,83	6,88	6,9	6,89	6,86
2,5	60	13	60	6,76	6,78	6,78	6,73	6,64
2,5	60	13	70	6,68	6,68	6,65	6,55	6,39
2,5	60	13	80	6,59	6,57	6,49	6,35	6,11
2,5	60	13	90	6,5	6,43	5,3	6,1	5,77
2,5	60	14	50	7,13	7,21	7,25	7,28	7,29
2,5	60	14	60	7,06	7,12	7,14	7,13	7,08
2,5	60	14	70	6,98	7,02	7,02	6,96	6,85
2,5	60	14	80	6,9	6,9	6,87	6,77	6,59
2,5	60	14	90	6,81	6,78	6,69	6,53	6,28
2,5	60	15	50	7,36	7,48	7,55	7,61	7,65
2,5	60	15	60	7,29	7,39	7,44	7,46	7,45
2,5	60	15	70	7,21	7,28	7,32	7,3	7,23
2,5	60	15	80	7,13	7,17	7,18	7,12	6,99
2,5	60	15	90	7,04	7,05	7,01	6,9	6,7
2,5	60	16	50	7,51	7,67	7,77	7,87	7,95
2,5	60	16	60	7,43	7,57	7,67	7,73	7,75
2,5	60	16	70	7,36	7,47	7,55	7,58	7,55
2,5	60	16	80	7,27	7,36	7,4	7,4	7,31
2,5	60	16	90	7,19	7,24	7,24	7,18	7,03

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
2,5	70	12	50	8,93	9,02	9,08	9,1	9,1
2,5	70	12	60	8,86	8,92	8,96	8,95	8,89
2,5	70	12	70	8,79	8,82	8,82	8,77	8,65
2,5	70	12	80	8,7	8,7	8,66	8,56	8,38
2,5	70	12	90	8,61	8,58	8,48	8,31	8,05
2,5	70	13	50	9,29	9,42	9,52	9,58	9,62
2,5	70	13	60	9,23	9,32	9,4	9,44	9,43
2,5	70	13	70	9,15	9,23	9,27	9,26	9,21
2,5	70	13	80	9,08	9,12	9,12	9,08	8,96
2,5	70	13	90	8,99	8,99	8,95	8,86	8,67
2,5	70	14	50	9,57	9,73	9,88	9,98	10,06
2,5	70	14	60	9,5	9,64	9,76	9,84	9,87
2,5	70	14	70	9,43	9,54	9,63	9,68	9,66
2,5	70	14	80	9,35	9,43	9,49	9,49	9,43
2,5	70	14	90	9,27	9,31	9,32	9,28	9,15
2,5	70	15	50	9,75	9,96	10,15	10,29	10,4
2,5	70	15	60	9,68	9,86	10,03	10,15	10,23
2,5	70	15	70	9,6	9,76	9,89	9,99	10,03
2,5	70	15	80	9,53	9,65	9,75	9,81	9,8
2,5	70	15	90	9,45	9,54	9,6	9,6	9,53
2,5	70	16	50	9,8	10,06	10,31	10,48	10,64
2,5	70	16	60	9,73	9,95	10,18	10,36	10,47
2,5	70	16	70	9,65	9,85	10,04	10,19	10,29
2,5	70	16	80	9,56	9,74	9,89	10	10,06
2,5	70	16	90	9,48	9,62	9,74	9,8	9,79

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
2,5	80	12	50	11,61	11,77	11,92	12,04	12,12
2,5	80	12	60	11,55	11,68	11,8	11,89	11,93
2,5	80	12	70	11,48	11,58	11,66	11,72	11,72
2,5	80	12	80	11,4	11,48	11,53	11,53	11,47
2,5	80	12	90	11,32	11,37	11,37	11,32	11,18
2,5	80	13	50	11,95	12,15	12,34	12,51	12,63
2,5	80	13	60	11,88	12,05	12,22	12,36	12,46
2,5	80	13	70	11,81	11,96	12,09	12,2	12,26
2,5	80	13	80	11,74	11,86	11,95	12,01	12,01
2,5	80	13	90	11,66	11,75	11,81	11,81	11,76
2,5	80	14	50	12,16	12,41	12,65	12,28	13,05
2,5	80	14	60	12,1	12,32	12,53	12,73	12,88
2,5	80	14	70	12,03	12,22	12,4	12,56	12,68
2,5	80	14	80	11,95	12,12	12,27	12,38	12,44
2,5	80	14	90	11,87	12,02	12,13	11,19	12,19
2,5	80	15	50	12,25	12,55	12,85	13,14	13,34
2,5	80	15	60	12,18	12,45	12,72	12,98	13,18
2,5	80	15	70	12,11	12,35	12,59	12,8	12,98
2,5	80	15	80	12,03	12,25	12,45	12,62	12,74
2,5	80	15	90	11,95	12,14	12,3	12,43	12,49
2,5	80	16	50	12,16	12,5	12,88	13,23	13,48
2,5	80	16	60	12,08	12,4	12,74	13,07	13,31
2,5	80	16	70	11,99	12,29	12,59	12,87	13,13
2,5	80	16	80	11,92	12,19	12,44	12,68	12,87
2,5	80	16	90	11,83	12,08	12,29	12,48	12,61

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
2,5	90	12	50	14,41	14,64	14,88	15,11	15,3
2,5	90	12	60	14,34	14,56	14,76	14,95	15,11
2,5	90	12	70	14,28	14,47	14,64	14,79	14,91
2,5	90	12	80	14,21	14,37	14,51	14,61	14,69
2,5	90	12	90	14,14	14,27	14,37	14,42	14,42
2,5	90	13	50	14,68	14,96	15,25	15,54	15,79
2,5	90	13	60	14,61	14,88	15,13	15,38	15,61
2,5	90	13	70	14,55	14,78	15,01	15,22	15,4
2,5	90	13	80	14,48	14,69	14,88	15,06	15,18
2,5	90	13	90	14,41	14,59	14,74	14,86	14,94
2,5	90	14	50	14,81	15,15	15,49	15,84	16,16
2,5	90	14	60	14,74	15,06	15,37	15,68	15,97
2,5	90	14	70	14,68	14,96	15,24	15,51	15,76
2,5	90	14	80	14,61	14,87	15,12	15,34	15,53
2,5	90	14	90	14,53	14,76	14,98	15,16	15,3
2,5	90	15	50	14,77	15,17	15,58	15,98	16,37
2,5	90	15	60	14,7	15,07	15,45	15,81	16,17
2,5	90	15	70	14,63	14,97	15,32	15,64	15,94
2,5	90	15	80	14,56	14,87	15,18	15,47	15,72
2,5	90	15	90	14,48	14,77	15,04	15,29	15,48
2,5	90	16	50	14,5	14,95	15,43	15,94	16,35
2,5	90	16	60	14,42	14,83	15,29	15,75	16,14
2,5	90	16	70	14,34	14,75	15,13	15,55	15,95
2,5	90	16	80	14,26	14,64	14,99	15,36	15,71
2,5	90	16	90	14,18	14,53	14,85	15,16	15,44

Table D.1 (*continued*)

Volumetric airflow	Drying air temperature	Final moisture content of grain	Relative humidity of ambient air	Net evaporation g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
3	50	12	50	3,8	3,78	3,73	3,65	3,54
3	50	12	60	3,74	3,69	3,6	3,47	3,28
3	50	12	70	3,66	3,58	3,45	3,25	2,96
3	50	12	80	3,57	3,46	3,27	2,98	2,48
3	50	12	90	3,47	3,3	3,04	2,58	a
3	50	13	50	4,11	4,1	4,08	4,03	3,95
3	50	13	60	4,05	4,02	3,96	3,87	3,73
3	50	13	70	3,98	3,93	3,83	3,68	3,46
3	50	13	80	3,9	3,82	3,68	3,47	3,15
3	50	13	90	3,8	3,68	3,49	3,2	2,71
3	50	14	50	4,37	4,38	4,37	4,35	4,3
3	50	14	60	4,31	4,3	4,27	4,2	4,09
3	50	14	70	4,25	4,22	4,15	4,03	3,86
3	50	14	80	4,17	4,12	4,01	3,84	3,58
3	50	14	90	4,09	3,99	3,84	3,61	3,25
3	50	15	50	4,59	4,62	4,63	4,63	4,6
3	50	15	60	4,54	4,55	4,53	4,49	4,41
3	50	15	70	4,47	4,47	4,42	4,34	4,19
3	50	15	80	4,4	4,37	4,3	4,16	3,94
3	50	15	90	4,32	4,26	4,14	3,95	3,64
3	50	16	50	4,78	4,82	4,85	4,87	4,87
3	50	16	60	4,72	4,75	4,76	4,74	4,69
3	50	16	70	4,66	4,68	4,66	4,6	4,48
3	50	16	80	4,59	4,58	4,54	4,43	4,25
3	50	16	90	4,51	4,47	4,39	4,24	3,97

Table D.1 (*continued*)

Volumetric airflow	Drying air temperature	Final moisture content of grain	Relative humidity of ambient air	Net evaporation g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
3	60	12	50	5,77	5,78	5,77	5,73	5,67
3	60	12	60	5,71	5,7	5,66	5,58	5,45
3	60	12	70	5,64	5,61	5,53	5,4	5,21
3	60	12	80	5,56	5,5	5,38	5,2	4,91
3	60	12	90	5,47	5,36	5,19	4,94	4,54
3	60	13	50	6,12	6,15	6,16	6,16	6,13
3	60	13	60	6,06	6,08	6,06	6,02	5,93
3	60	13	70	5,99	5,99	5,95	5,86	5,72
3	60	13	80	5,92	5,89	5,81	5,68	5,47
3	60	13	90	5,84	5,77	5,65	5,46	5,16
3	60	14	50	6,41	6,47	6,5	6,52	6,52
3	60	14	60	6,35	6,39	6,4	6,39	6,34
3	60	14	70	6,28	6,31	6,3	6,24	6,14
3	60	14	80	6,21	6,21	6,17	6,08	5,91
3	60	14	90	6,13	6,13	6,02	5,88	5,65
3	60	15	50	6,64	6,72	6,78	6,83	6,86
3	60	15	60	6,58	6,65	6,69	6,71	6,69
3	60	15	70	6,51	6,57	6,59	6,57	6,51
3	60	15	80	6,44	6,47	6,47	6,42	6,29
3	60	15	90	6,36	6,36	6,32	6,23	6,04
3	60	16	50	6,8	6,91	7	7,08	7,14
3	60	16	60	6,73	6,84	6,92	6,96	6,99
3	60	16	70	6,67	6,76	6,82	6,83	6,81
3	60	16	80	6,6	6,66	6,7	6,69	6,61
3	60	16	90	6,52	6,56	6,56	6,5	6,36

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
3	70	12	50	8,11	8,17	8,21	8,22	8,22
3	70	12	60	8,05	8,09	8,11	8,09	8,04
3	70	12	70	7,98	8	7,99	7,94	7,83
3	70	12	80	7,91	7,9	7,85	7,75	7,59
3	70	12	90	7,82	7,79	7,69	7,55	7,29
3	70	13	50	8,47	8,57	8,64	8,68	8,71
3	70	13	60	8,41	8,48	8,54	8,56	8,54
3	70	13	70	8,34	8,4	8,43	8,42	8,36
3	70	13	80	8,27	8,3	8,3	8,25	8,15
3	70	13	90	8,19	8,19	8,15	8,05	7,89
3	70	14	50	8,75	8,88	8,98	9,06	9,13
3	70	14	60	8,69	8,8	8,89	8,95	8,97
3	70	14	70	8,62	8,71	8,78	8,82	8,8
3	70	14	80	8,55	8,62	8,66	8,66	8,6
3	70	14	90	8,48	8,52	8,52	8,46	8,35
3	70	15	50	8,94	9,11	9,25	9,37	9,47
3	70	15	60	8,88	9,03	9,16	9,25	9,32
3	70	15	70	8,81	8,94	9,05	9,13	9,15
3	70	15	80	8,74	8,85	8,93	8,97	8,96
3	70	15	90	8,67	8,75	8,79	8,79	8,73
3	70	16	50	9,02	9,24	9,41	9,57	9,72
3	70	16	60	8,95	9,15	9,33	9,46	9,57
3	70	16	70	8,88	9,06	9,22	9,34	9,41
3	70	16	80	8,81	8,96	9,09	9,19	9,23
3	70	16	90	8,73	8,86	8,95	9,01	9

Table D.1 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Relative humidity of ambient air**	**Net evaporation** g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
3	80	12	50	10,7	10,83	10,95	11,04	11,1
3	80	12	60	10,64	10,75	10,84	10,91	10,94
3	80	12	70	10,58	10,66	10,73	10,76	10,75
3	80	12	80	10,51	10,57	10,61	10,61	10,54
3	80	12	90	10,43	10,46	10,46	10,4	10,29
3	80	13	50	11,04	11,21	11,37	11,5	11,6
3	80	13	60	10,98	11,13	11,27	11,38	11,45
3	80	13	70	10,91	11,04	11,15	11,24	11,28
3	80	13	80	10,85	10,95	11,03	11,09	11,09
3	80	13	90	10,78	10,85	10,89	10,9	10,84
3	80	14	50	11,27	11,48	11,69	11,86	12,01
3	80	14	60	11,21	11,4	11,59	11,75	11,86
3	80	14	70	11,15	11,32	11,47	11,61	11,71
3	80	14	80	11,08	11,23	11,35	11,45	11,51
3	80	14	90	11,01	11,13	11,22	11,28	11,28
3	80	15	50	11,38	11,65	11,9	12,12	12,31
3	80	15	60	11,32	11,56	11,8	12,01	12,17
3	80	15	70	11,25	11,47	11,68	11,86	12,01
3	80	15	80	11,19	11,38	11,56	11,71	11,82
3	80	15	90	11,11	11,28	11,42	11,54	11,59
3	80	16	50	11,32	11,65	11,97	12,22	12,47
3	80	16	60	11,25	11,55	11,85	12,11	12,33
3	80	16	70	11,18	11,46	11,73	11,98	12,17
3	80	16	80	11,11	11,36	11,59	11,81	11,99
3	80	16	90	11,04	11,26	11,46	11,63	11,76

Table D.1 (*continued*)

Volumetric airflow	Drying air temperature	Final moisture content of grain	Relative humidity of ambient air	Net evaporation g(water)/kg(dry air)				
				Ambient air temperature				
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	[range: 50 to 90] %	5 °C	10 °C	15 °C	20 °C	25 °C
3	90	12	50	13,43	13,64	13,84	14,04	14,19
3	90	12	60	13,38	13,56	13,74	13,9	14,04
3	90	12	70	13,31	13,48	13,63	13,76	13,86
3	90	12	80	13,25	13,4	13,52	13,61	13,66
3	90	12	90	13,18	13,29	13,39	13,45	13,45
3	90	13	50	13,72	13,97	14,23	14,48	14,67
3	90	13	60	13,66	13,89	14,12	14,34	14,54
3	90	13	70	13,6	13,81	14,01	14,2	14,36
3	90	13	80	13,54	13,72	13,9	14,05	14,17
3	90	13	90	13,47	13,63	13,77	13,89	13,96
3	90	14	50	13,88	14,18	14,48	14,79	15,04
3	90	14	60	13,82	14,1	14,38	14,65	14,9
3	90	14	70	13,76	14,01	14,27	14,51	14,72
3	90	14	80	13,69	13,93	14,15	14,36	14,53
3	90	13	90	13,63	13,83	14,03	14,19	14,32
3	90	15	50	13,88	14,23	14,6	14,97	15,26
3	90	15	60	13,82	14,14	14,48	14,83	15,14
3	90	15	70	13,75	14,05	14,36	14,67	14,96
3	90	15	80	13,68	13,97	14,24	14,51	14,75
3	90	15	90	13,61	13,87	14,12	14,34	14,54
3	90	16	50	13,65	14,07	14,52	14,92	15,28
3	90	16	60	13,58	13,97	14,39	14,8	15,14
3	90	16	70	13,51	13,88	14,25	14,63	14,95
3	90	16	80	13,45	13,77	14,12	14,46	14,77
3	90	16	90	13,37	13,67	13,99	14,28	14,54

[a] Infeasible treatment combination.

Table D.2 — Wheat — Effect of grain initial and final moisture content, drying air temperature and volumetric airflow

Volumetric airflow	Drying air temperature	Grain final moisture content	Net evaporation g(water)/kg(dry air)						
			Grain initial moisture content						
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.	30 % w.b.
0,25	50	12	8,41	8,89	9,21	9,39	9,46	9,42	9,04
0,25	50	13	8,65	9,19	9,55	9,79	9,95	10,05	10,05
0,25	50	14	8,75	9,33	9,72	9,98	10,17	10,3	10,34
0,25	50	15	8,73	9,39	9,79	10,06	10,25	10,38	10,42
0,25	50	16	8,49	9,4	9,82	10,09	10,27	10,39	10,42
0,25	60	12	11,35	11,91	12,29	12,53	12,69	12,77	12,74
0,25	60	13	11,49	12,11	12,53	12,81	13,01	13,14	13,18
0,25	60	14	11,5	12,21	12,65	12,95	13,16	13,32	13,37
0,25	60	15	11,34	12,23	12,7	13,01	13,22	13,36	13,41
0,25	60	16	10,84	12,19	12,72	13,03	13,23	13,37	13,41
0,25	70	12	14,25	14,91	15,35	15,64	15,82	15,96	15,99
0,25	70	13	14,31	15,06	15,54	15,86	16,08	16,25	16,32
0,25	70	14	14,21	15,11	15,63	15,98	16,2	16,38	16,46
0,25	70	15	13,9	15,09	15,67	16,02	16,24	16,41	16,47
0,25	70	16	13,11	14,96	15,66	16,03	16,26	16,42	16,48
0,25	80	12	17,14	17,93	18,43	18,77	18,98	19,16	19,22
0,25	80	13	17,11	18,03	18,58	18,96	19,2	19,4	19,5
0,25	80	14	16,9	18,03	18,65	19,05	19,3	19,51	19,6
0,25	80	15	16,41	17,94	18,66	19,08	19,33	19,53	19,61
0,25	80	16	15,3	17,71	18,63	19,09	19,34	19,54	19,62

Table D.2 (*continued*)

Volumetric airflow	**Drying air temperature**	**Grain final moisture content**	**Net evaporation** g(water)/kg(dry air)						
			Grain initial moisture content						
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.	30 % w.b.
0,25	90	12	20,01	20,95	21,54	21,93	22,17	22,38	22,47
0,25	90	13	19,87	20,99	21,66	23,09	22,36	22,59	22,71
0,25	90	14	19,52	20,94	21,7	23,16	22,45	22,68	22,8
0,25	90	15	18,85	20,77	21,68	23,18	22,47	22,7	22,8
0,25	90	16	17,44	20,42	21,59	22,18	22,49	22,7	22,81
0,5	50	12	7,49	8,04	8,45	8,74	8,94	9,04	9,04
0,5	50	13	7,94	8,52	8,95	9,26	9,47	9,61	9,66
0,5	50	14	8,2	8,82	9,26	9,56	9,77	9,92	9,98
0,5	50	15	8,28	9,01	9,45	9,75	9,96	10,11	10,17
0,5	50	16	8,06	9,09	9,57	9,88	10,09	10,24	10,31
0,5	60	12	10,54	11,18	11,64	11,97	12,2	12,35	12,39
0,5	60	13	10,84	11,53	12	12,33	12,56	12,71	12,77
0,5	60	14	10,95	11,73	12,22	12,55	12,78	12,94	13,01
0,5	60	15	10,83	11,83	12,36	12,7	12,94	13,11	13,18
0,5	60	16	10,28	11,8	12,44	12,8	13,05	13,22	13,31
0,5	70	12	13,52	14,26	14,76	15,11	15,36	15,52	15,59
0,5	70	13	13,68	14,5	15,03	15,39	15,64	15,81	15,88
0,5	70	14	13,63	14,62	15,2	15,57	15,83	16,01	16,1
0,5	70	15	13,29	14,62	15,29	15,7	15,97	16,17	16,27
0,5	70	16	12,38	14,48	15,32	15,78	16,07	16,28	16,38
0,5	80	12	16,42	17,28	17,85	18,24	18,5	18,68	18,77
0,5	80	13	16,45	17,45	18,06	18,47	18,75	18,95	19,05
0,5	80	14	16,24	17,49	18,19	18,63	18,93	19,14	19,26
0,5	80	15	15,67	17,39	18,24	18,74	19,06	19,28	19,41
0,5	80	16	14,42	17,1	18,21	18,79	19,15	19,38	19,52

Table D.2 (*continued*)

Volumetric airflow	Drying air temperature	Grain final moisture content	Net evaporation g(water)/kg(dry air)						
			Grain initial moisture content						
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.	30 % w.b.
0,5	90	12	19,27	20,29	20,93	21,37	21,67	21,88	22
0,5	90	13	19,15	20,38	21,11	21,58	21,91	22,13	22,26
0,5	90	14	18,78	20,33	21,19	21,72	22,07	22,31	22,46
0,5	90	15	18	20,12	21,19	21,8	22,19	22,45	22,6
0,5	90	16	16,45	19,7	21,09	21,83	22,27	22,54	22,7
1	50	12	5,82	6,35	6,82	7,22	7,55	7,83	8,02
1	50	13	6,36	6,93	7,42	7,84	8,2	8,48	8,69
1	50	14	6,76	7,36	7,87	8,3	8,65	8,93	9,14
1	50	15	6,99	7,69	8,22	8,65	9	9,28	9,46
1	50	16	6,96	7,92	8,49	8,93	9,28	9,54	9,72
1	60	12	8,71	9,4	9,97	10,47	10,87	11,19	11,42
1	60	13	9,17	9,9	10,49	10,98	11,39	11,7	11,91
1	60	14	9,45	10,26	10,88	11,38	11,77	12,07	12,27
1	60	15	9,5	10,51	11,18	11,69	12,07	12,36	12,55
1	60	16	9,12	10,62	11,39	11,92	12,3	12,58	12,75
1	70	12	11,68	12,51	13,19	13,74	14,17	14,5	14,74
1	70	13	12,02	12,93	13,63	14,18	14,6	14,92	15,14
1	70	14	12,14	13,21	13,95	14,51	14,93	15,24	15,44
1	70	15	11,95	13,34	14,18	14,76	15,18	15,48	15,66
1	70	16	11,19	13,29	14,3	14,93	15,36	15,65	15,83
1	80	12	14,64	15,63	16,4	16,99	17,45	17,79	18,03
1	80	13	14,84	15,96	16,77	17,37	17,82	18,15	18,36
1	80	14	14,77	16,13	17,02	17,64	18,09	18,41	18,61
1	80	15	14,29	16,12	17,16	17,83	18,28	18,6	18,8
1	80	16	13,11	15,88	17,18	17,93	18,41	18,73	18,93

Table D.2 (*continued*)

Volumetric airflow	Drying air temperature	Grain final moisture content	Net evaporation g(water)/kg(dry air)						
			Grain initial moisture content						
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.	30 % w.b.
1	90	12	17,54	18,72	19,58	20,22	20,7	21,05	21,3
1	90	13	17,58	18,94	19,87	20,53	21,01	21,36	21,58
1	90	14	17,32	18,99	20,04	20,74	21,23	21,57	21,79
1	90	15	16,59	18,84	20,09	20,87	21,38	21,72	21,94
1	90	16	15,05	18,4	20	20,9	21,46	21,83	22,05
1,5	50	12	4,7	5,16	5,58	5,97	6,32	6,65	6,94
1,5	50	13	5,2	5,7	6,15	6,57	6,96	7,3	7,61
1,5	50	14	5,59	6,13	6,6	7,03	7,43	7,78	8,09
1,5	50	15	5,86	6,47	6,97	7,41	7,81	8,17	8,48
1,5	50	16	5,94	6,74	7,28	7,73	8,14	8,5	8,8
1,5	60	12	7,31	7,94	8,5	9,01	9,48	9,9	10,25
1,5	60	13	7,78	8,45	9,03	9,56	10,03	10,45	10,8
1,5	60	14	8,11	8,85	9,46	10	10,47	10,89	11,23
1,5	60	15	8,26	9,15	9,81	10,36	10,84	11,25	11,58
1,5	60	16	8,05	9,34	10,08	10,66	11,15	11,56	11,88
1,5	70	12	10,12	10,92	11,61	12,22	12,76	13,22	13,6
1,5	70	13	10,51	11,38	12,1	12,72	13,26	13,72	14,08
1,5	70	14	10,73	11,73	12,49	13,12	13,67	14,12	14,47
1,5	70	15	10,66	11,94	12,79	13,45	14	14,45	14,79
1,5	70	16	10,09	11,99	12,99	13,71	14,27	14,72	15,05
1,5	80	12	13,01	14	14,81	15,5	16,1	16,59	16,98
1,5	80	13	13,3	14,39	15,25	15,96	16,55	17,03	17,4
1,5	80	14	13,35	14,65	15,58	16,32	16,91	17,39	17,75
1,5	80	15	13,02	14,74	15,81	16,59	17,2	17,68	18,02
1,5	80	16	12,05	14,61	15,92	16,79	17,43	17,91	18,25

Table D.2 (*continued*)

Volumetric airflow	Drying air temperature	Grain final moisture content	Net evaporation g(water)/kg(dry air)						
			Grain initial moisture content						
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.	30 % w.b.
1,5	90	12	15,92	17,09	18,03	18,8	19,44	19,95	20,34
1,5	90	13	16,06	17,4	18,4	19,2	19,84	20,34	20,72
1,5	90	14	15,91	17,55	18,66	19,51	20,16	20,66	21,02
1,5	90	15	15,3	17,49	18,8	19,72	20,4	20,9	21,26
1,5	90	16	13,94	17,19	18,8	19,85	20,57	21,09	21,44
2	50	12	3,93	4,33	4,7	5,06	5,39	5,72	6,02
2	50	13	4,38	4,82	5,23	5,61	5,97	6,32	6,65
2	50	14	4,74	5,22	5,65	6,05	6,42	6,78	7,11
2	50	15	5,01	5,55	6	6,41	6,8	7,16	7,5
2	50	16	5,14	5,82	6,3	6,73	7,12	7,49	7,83
2	60	12	6,28	6,85	7,38	7,86	8,32	8,75	9,15
2	60	13	6,73	7,34	7,89	8,39	8,86	9,3	9,7
2	60	14	7,07	7,74	8,31	8,82	9,3	9,74	10,15
2	60	15	7,26	8,05	8,86	9,19	9,68	10,12	10,53
2	60	16	7,15	8,27	8,95	9,51	10	10,45	10,85
2	70	12	8,91	9,66	10,32	10,92	11,47	11,99	12,45
2	70	13	9,32	10,13	10,82	11,43	11,99	12,5	12,96
2	70	14	9,57	10,49	11,21	11,85	12,42	12,93	13,38
2	70	15	9,59	10,74	11,54	12,2	12,78	13,29	13,74
2	70	16	9,18	10,85	11,78	12,49	13,09	13,61	14,05
2	80	12	11,71	12,63	13,44	14,14	14,77	15,35	15,84
2	80	13	12,03	13,06	13,89	14,62	15,26	15,83	16,31
2	80	14	12,14	13,35	14,26	15,01	15,66	16,23	16,71
2	80	15	11,94	13,5	14,52	15,32	15,99	16,57	17,04
2	80	16	11,12	13,44	14,69	15,56	16,27	16,85	17,32

Table D.2 (*continued*)

Volumetric airflow	**Drying air temperature**	**Grain final moisture content**	**Net evaporation** g(water)/kg(dry air)						
			Grain initial moisture content						
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.	30 % w.b.
2	90	12	14,55	15,69	16,62	17,43	18,14	18,75	19,27
2	90	13	14,76	16,04	17,04	17,87	18,58	19,2	19,7
2	90	14	14,7	16,24	17,34	18,21	18,95	19,56	20,06
2	90	15	14,24	16,25	17,53	18,48	19,24	19,86	20,36
2	90	16	13,02	16	17,6	18,65	19,47	20,11	20,61
2,5	50	12	3,37	3,73	4,07	4,39	4,7	4,99	5,28
2,5	50	13	3,78	4,18	4,54	4,89	5,22	5,55	5,86
2,5	50	14	4,11	4,54	4,93	5,29	5,64	5,98	6,3
2,5	50	15	4,37	4,85	5,25	5,64	6	6,34	6,67
2,5	50	16	4,51	5,1	5,54	5,93	6,3	6,66	6,99
2,5	60	12	5,51	6,02	6,51	6,97	7,4	7,81	8,21
2,5	60	13	5,92	6,49	6,99	7,47	7,91	8,34	8,74
2,5	60	14	6,26	6,87	7,4	7,88	8,34	8,77	9,18
2,5	60	15	6,46	7,18	7,74	8,24	8,71	9,14	9,55
2,5	60	16	6,43	7,41	8,03	8,55	9,03	9,47	9,89
2,5	70	12	7,96	8,66	9,29	9,87	10,41	10,91	11,39
2,5	70	13	8,37	9,12	9,77	10,37	10,91	11,42	11,9
2,5	70	14	8,64	9,49	10,17	10,78	11,34	11,85	12,33
2,5	70	15	8,71	9,75	10,5	11,13	11,7	12,22	12,71
2,5	70	16	8,38	9,89	10,76	11,43	12,02	15,55	13,04
2,5	80	12	10,65	11,53	12,29	12,98	13,62	14,21	14,75
2,5	80	13	10,99	11,95	12,76	13,47	14,11	14,7	15,24
2,5	80	14	11,14	12,27	13,13	13,87	14,52	15,12	15,65
2,5	80	15	11	12,45	13,42	14,2	14,87	15,47	16,01
2,5	80	16	10,35	12,44	13,61	14,46	15,16	15,78	16,32

Table D.2 (*continued*)

Volumetric airflow	Drying air temperature	Grain final moisture content	Net evaporation g(water)/kg(dry air)						
			Grain initial moisture content						
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.	30 % w.b.
2,5	90	12	13,43	14,51	15,42	16,22	16,94	17,6	18,19
2,5	90	13	13,67	14,88	15,85	16,68	17,4	18,06	18,65
2,5	90	14	13,66	15,12	16,18	17,04	17,79	18,45	19,03
2,5	90	15	13,26	15,18	16,4	17,33	18,11	18,79	19,37
2,5	90	16	12,26	14,99	16,5	17,54	18,37	19,07	19,66
3	50	12	2,95	3,28	3,58	3,87	4,15	4,43	4,69
3	50	13	3,32	3,68	4,01	4,33	4,64	4,94	5,23
3	50	14	3,62	4,01	4,37	4,7	5,03	5,34	5,65
3	50	15	3,87	4,3	4,67	5,02	5,36	5,68	5,99
3	50	16	4,02	4,54	4,94	5,3	5,65	5,98	6,3
3	60	12	4,9	5,38	5,83	6,26	6,66	7,05	7,43
3	60	13	5,3	5,81	6,28	6,73	7,14	7,55	7,94
3	60	14	5,61	6,17	6,67	7,12	7,55	7,97	8,36
3	60	15	5,82	6,47	6,99	7,47	7,91	8,33	8,73
3	60	16	5,83	6,7	7,27	7,77	8,22	8,65	9,05
3	70	12	7,21	7,86	8,45	9	9,52	10,01	10,48
3	70	13	7,6	8,3	8,92	9,48	10,01	10,51	10,98
3	70	14	7,88	8,66	9,31	9,89	10,43	10,93	11,41
3	70	15	7,98	8,93	9,63	10,24	10,79	11,3	11,78
3	70	16	7,72	9,09	9,9	10,54	11,11	11,63	12,11
3	80	12	9,77	10,61	11,34	12,01	12,63	13,21	13,76
3	80	13	10,12	11,04	11,8	12,49	13,12	13,7	14,25
3	80	14	10,3	11,35	12,18	12,89	13,53	14,12	14,67
3	80	15	10,22	11,56	12,47	13,22	13,88	14,48	15,04
3	80	16	9,64	11,59	12,68	13,5	14,19	14,8	15,36

Table D.2 (*continued*)

Volumetric airflow	**Drying air temperature**	**Grain final moisture content**	**Net evaporation** g(water)/kg(dry air)						
			Grain initial moisture content						
[range: 0,25 to 3,0] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 50 to 90] °C	[range: 12 to 16] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.	30 % w.b.
3	90	12	12,48	13,52	14,4	15,18	15,89	16,56	17,17
3	90	13	12,74	13,9	14,83	15,64	16,37	17,03	17,64
3	90	14	12,79	14,15	15,17	16,02	16,76	17,44	18,04
3	90	15	12,47	14,24	15,41	16,32	17,09	17,78	18,4
3	90	16	11,53	14,12	15,54	16,55	17,37	18,07	18,7

Ambient air conditions:

— temperature 15 °C,
— relative humidity 80 %,
— specific humidity 8,505 g/kg.

Table D.3 — Oilseed rape (canola) — Effect of grain initial and final moisture content, drying air temperature and volumetric airflow

Volumetric airflow	Drying air temperature	Final moisture content of grain	Net evaporation g(water)/kg(dry air)							
			Grain initial moisture content							
[range: 1 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 90] °C	[range: 6 to 10] % w.b.	10 % w.b.	11 % w.b.	12 % w.b.	14 % w.b.	16 % w.b.	18 % w.b.	20 % w.b.	22 % w.b.
1	40	8	5,65	—	6,08	6,34	6,58	6,77	6,89	6,99
1	40	9	5,11	—	6,43	6,78	6,99	7,16	7,26	7,35
1	50	8	7,85	—	8,94	9,25	9,49	9,72	9,84	9,97
1	50	9	6,77	—	9,01	9,63	9,87	10,07	10,17	10,3
1	60	8	9,87	—	11,69	12,2	12,51	12,74	12,92	13,05
1	60	9	8,17	—	11,41	12,46	12,83	13,07	13,22	13,34
1	70	8	11,74	—	14,26	15,13	15,53	15,83	16,07	16,2
1	70	9	9,55	—	13,78	15,03	15,7	16,08	16,33	16,45
1	80	8	13,53	—	16,61	17,79	18,63	18,98	19,28	19,42
1	80	9	10,78	—	15,8	17,38	18,68	19,16	19,47	15,59
1	90	8	15,3	—	19,01	20,98	21,71	22,15	22,52	22,67
1	90	9	11,99	—	18,15	20,52	21,64	22,24	22,62	22,77
1,5	40	6	3,03	—	2,98	3,23	3,53	3,73	3,56	3,56
1,5	40	7	4,48	—	4,47	4,68	4,94	5,17	5,34	5,5
1,5	40	8	5,4	—	5,45	5,59	5,77	5,96	6,1	6,25
1,5	40	9	4,99	—	6,15	6,29	6,39	6,55	6,65	6,77
1,5	40	10	—	5,34	6,25	6,77	6,84	6,98	7,04	7,15
1,5	50	6	5,79	—	5,88	6,18	6,58	6,9	7,16	7,37
1,5	50	7	7,19	—	7,21	7,43	7,71	7,99	8,21	8,4
1,5	50	8	7,67	—	8,22	8,37	8,59	8,78	8,95	9,11
1,5	50	9	6,57	—	8,79	9,12	9,26	9,4	9,52	9,65
1,5	50	10	—	6,96	8,44	9,56	9,75	9,85	9,94	10,04

Table D.3 (*continued*)

Volumetric airflow	Drying air temperature	Final moisture content of grain	Net evaporation g(water)/kg(dry air)							
			Grain initial moisture content							
[range: 1 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 90] °C	[range: 6 to 10] % w.b.	10 % w.b.	11 % w.b.	12 % w.b.	14 % w.b.	16 % w.b.	18 % w.b.	20 % w.b.	22 % w.b.
1,5	60	6	8,52	—	8,67	9,03	9,48	9,86	10,19	10,45
1,5	60	7	9,75	—	10,03	10,28	10,63	10,93	11,19	11,41
1,5	60	8	9,59	—	10,98	11,28	11,53	11,75	11,96	12,12
1,5	60	9	7,91	—	11,17	12	12,23	12,38	12,53	12,66
1,5	60	10	—	8,33	10,48	12,24	12,71	12,84	12,96	13,05
1,5	70	6	11,28	—	11,57	11,99	12,49	12,95	13,33	13,62
1,5	70	7	12,13	—	12,88	13,25	13,64	14	14,32	14,55
1,5	70	8	11,41	—	13,64	14,21	14,54	14,82	15,07	15,25
1,5	70	9	9,17	—	13,37	14,79	15,23	15,45	15,65	15,78
1,5	70	10	—	9,61	12,33	14,71	15,62	15,91	16,08	16,18
1,5	80	6	13,92	—	14,53	15,07	15,61	16,11	16,57	16,88
1,5	80	7	14,3	—	15,7	16,27	16,75	17,14	17,54	17,79
1,5	80	8	13,12	—	16,13	17,16	17,64	17,97	18,27	18,46
1,5	80	9	10,36	—	15,47	17,53	18,26	18,56	18,84	18,98
1,5	80	10	—	10,8	14,13	17,18	18,49	18,96	19,26	19,37
1,5	90	6	16,44	—	17,47	18,17	18,8	19,37	19,87	20,21
1,5	90	7	16,25	—	18,44	19,33	19,92	20,38	20,81	21,08
1,5	90	8	14,75	—	18,5	20,04	20,75	21,17	21,53	21,74
1,5	90	9	11,36	—	17,52	20,1	21,24	21,73	20,09	22,26
1,5	90	10	—	12,01	15,95	19,52	21,26	22,04	22,46	22,62
2	40	8	5,04	—	4,85	4,91	5,08	5,23	5,38	5,54
2	40	9	4,89	—	5,74	5,72	5,79	5,89	6	6,13
2	50	8	7,34	—	7,48	7,51	7,68	7,85	8,03	8,21
2	50	9	6,38	—	8,36	8,43	8,5	8,6	8,72	8,85
2	60	8	9,32	—	10,15	10,26	10,47	10,66	10,88	11,08
2	60	9	7,72	—	10,8	11,22	11,37	11,47	11,62	11,77

Table D.3 (*continued*)

Volumetric airflow	Drying air temperature	Final moisture content of grain	Net evaporation g(water)/kg(dry air)							
			Grain initial moisture content							
[range: 1 to 3]	[range: 40 to 90]	[range: 6 to 10]	10 % w.b.	11 % w.b.	12 % w.b.	14 % w.b.	16 % w.b.	18 % w.b.	20 % w.b.	22 % w.b.
$m^3 \cdot s^{-1} \cdot m^{-3}$	°C	% w.b.								
2	70	8	11,1	—	12,79	13,11	13,42	13,63	13,91	14,13
2	70	9	8,96	—	13,04	14,01	14,33	14,44	14,68	14,84
2	80	8	12,75	—	15,32	16,02	16,44	16,75	17,07	17,32
2	80	9	10,05	—	15,15	16,78	17,32	17,56	17,83	18,02
2	90	8	14,22	—	17,73	18,93	19,51	19,9	20,31	20,59
2	90	9	11,12	—	17,12	19,46	20,33	20,7	21,06	21,27
2,5	40	8	4,66	—	4,34	4,36	4,5	4,63	4,78	4,93
2,5	40	9	4,81	—	5,33	5,21	5,23	5,31	5,41	5,53
2,5	50	8	6,95	—	6,78	6,75	6,88	7,03	7,21	7,39
2,5	50	9	6,28	—	7,87	7,77	7,77	7,83	7,94	8,07
2,5	60	8	8,95	—	9,35	9,35	9,51	9,68	9,88	10,09
2,5	60	9	7,54	—	10,3	10,46	10,5	10,57	10,69	10,85
2,5	70	8	10,73	—	11,94	12,08	12,32	12,53	12,78	13,02
2,5	70	9	8,64	—	12,56	13,19	13,38	13,49	13,66	13,83
2,5	80	8	12,4	—	14,44	14,93	15,26	15,56	15,85	16,12
2,5	80	9	9,8	—	14,72	15,91	16,33	16,54	16,76	16,97
2,5	90	8	13,87	—	16,89	17,8	18,27	18,69	19,06	19,37
2,5	90	9	10,79	—	16,67	18,61	19,29	19,66	19,96	20,2
3	40	8	4,33	—	3,9	3,9	4,02	4,14	4,28	4,42
3	40	9	4,72	—	4,94	4,76	4,75	4,8	4,9	5,02
3	50	8	6,56	—	6,19	6,11	6,21	6,35	6,51	6,68
3	50	9	6,17	—	7,38	7,16	7,1	7,14	7,25	7,38

Table D.3 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Net evaporation** g(water)/kg(dry air)							
			Grain initial moisture content							
[range: 1 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 90] °C	[range: 6 to 10] % w.b.	10 % w.b.	11 % w.b.	12 % w.b.	14 % w.b.	16 % w.b.	18 % w.b.	20 % w.b.	22 % w.b.
3	60	8	8,58	—	8,62	8,54	8,66	8,82	9	9,21
3	60	9	7,36	—	9,77	9,73	9,7	9,73	9,85	10
3	70	8	10,37	—	11,13	11,16	11,33	11,53	11,76	12
3	70	9	8,53	—	12,02	12,4	12,46	12,54	12,69	12,86
3	80	8	12,05	—	13,62	13,92	14,17	14,44	14,72	15,01
3	80	9	9,59	—	14,19	15,09	15,35	15,5	15,7	15,92
3	90	8	13,52	—	16,04	16,75	17,13	17,48	17,85	18,17
3	90	9	10,53	—	16,15	17,75	18,28	18,57	18,86	19,12

Ambient air conditions:

— temperature 15 °C,
— relative humidity 80 %,
— specific humidity 8,505 g/kg.

Table D.4 — Maize — Effect of grain initial and final moisture content, drying air temperature and volumetric airflow

Volumetric airflow	Drying air temperature	Final moisture content of grain	Net evaporation [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3]	[range: 40 to 140]	[range: 14 to 16]	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.
$m^3 \cdot s^{-1} \cdot m^{-3}$	°C	% w.b.						
Values for grain initial moisture content from 18 % w.b. to 28 % w.b.								
0,25	40	14	—	—	—	—	—	—
0,25	40	14,5	3,1	—	—	—	—	—
0,25	40	15	3,93	3,26	—	—	—	—
0,25	40	15,5	4,46	4,1	3,6	—	—	—
0,25	40	16	4,83	4,65	4,32	4,06	3,73	—
0,25	60	14	7,92	7,7	7,24	—	—	—
0,25	60	14,5	8,21	7,96	8,07	7,75	7,18	—
0,25	60	15	8,7	8,85	8,69	8,51	8,22	7,86
0,25	60	15,5	8,91	9,26	9,2	9,09	8,9	8,68
0,25	60	16	9,01	9,59	9,63	9,58	9,44	9,28
0,25	80	14	12,93	13,39	13,54	13,54	13,43	13,25
0,25	80	14,5	13,12	13,75	14	14,06	14,02	13,91
0,25	80	15	13,22	14,03	14,38	14,5	14,49	14,44
0,25	80	15,5	13,21	14,25	14,7	14,88	14,92	14,9
0,25	80	16	13,05	14,4	14,96	15,2	15,28	15,29
0,25	100	14	17,7	18,69	19,23	19,48	19,60	19,65
0,25	100	14,5	17,73	18,9	19,52	19,82	19,97	20,05
0,25	100	15	17,65	19,06	19,77	20,11	20,3	20,4
0,25	100	15,5	17,44	19,17	19,98	20,37	20,59	20,71
0,25	100	16	17	19,23	20,16	20,59	20,83	20,98
0,25	120	14	22,41	23,8	24,59	25,01	25,27	25,44
0,25	120	14,5	22,31	23,93	24,82	25,27	25,55	25,73
0,25	120	15	22,06	24,02	25,02	25,52	26,06	25,99
0,25	120	15,5	21,62	24,05	25,20	27,75	26,06	26,25
0,25	120	16	20,83	24,02	25,35	25,96	26,3	26,5

Table D.4 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Net evaporation** [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 14 to 16] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.
0,25	140	14	27,08	28,83	29,9	30,44	30,79	31,03
0,25	140	14,5	26,83	28,91	30,11	30,7	31,07	31,31
0,25	140	15	26,4	28,94	30,29	30,95	31,34	31,59
0,25	140	15,5	25,69	28,91	30,45	31,18	31,6	31,86
0,25	140	16	24,54	28,79	30,56	31,39	31,85	32,12
0,5	40	14	—	—	—	—	—	—
0,5	40	14,5	2,68	—	—	—	—	—
0,5	40	15	3,24	2,69	—	—	—	—
0,5	40	15,5	3,73	3,2	2,81	2,47	—	—
0,5	40	16	4,16	3,64	3,26	3	2,79	2,6
0,5	60	14	0,95	6,59	6,24	5,91	5,54	
0,5	60	14,5	7,41	7,11	6,8	6,53	6,27	6,01
0,5	60	15	7,82	7,59	7,3	7,04	6,82	6,63
0,5	60	15,5	8,14	8,02	7,76	7,51	7,3	7,13
0,5	60	16	8,35	8,42	8,18	7,95	7,74	7,58
0,5	80	14	12,03	12,24	12,27	12,24	12,2	12,14
0,5	80	14,5	12,29	12,63	12,7	12,7	12,67	12,64
0,5	80	15	12,46	12,97	13,1	13,12	13,11	13,09
0,5	80	15,5	12,49	13,26	13,47	13,51	13,52	13,5
0,5	80	16	12,31	13,5	13,8	13,88	13,9	13,89
0,5	100	14	17	17,9	18,4	18,71	18,93	19,11
0,5	100	14,5	17,03	18,14	18,72	19,06	19,3	19,49
0,5	100	15	16,91	18,32	19	19,38	19,65	19,84
0,5	100	15,5	16,6	18,44	19,24	19,68	19,97	20,18
0,5	100	16	15,98	18,47	19,44	19,94	20,26	20,49

Table D.4 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Net evaporation** [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 14 to 16] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.
0,5	120	14	21,79	23,41	24,38	25,02	25,5	25,87
0,5	120	14,5	21,57	23,51	24,58	25,28	25,78	26,17
0,5	120	15	21,16	23,53	24,75	25,51	26,04	26,44
0,5	120	15,5	20,49	23,46	24,87	25,7	26,28	26,69
0,5	120	16	19,41	23,29	24,94	25,87	26,48	26,93
0,5	140	14	26,44	28,79	30,19	31,13	31,83	32,36
0,5	140	14,5	25,97	28,74	30,29	31,31	32,04	32,59
0,5	140	15	25,26	28,6	30,36	31,45	32,23	32,8
0,5	140	15,5	24,21	28,36	30,36	31,45	32,23	32,98
0,5	140	16	22,73	27,98	30,32	31,65	32,52	33,15
1	40	14	1,36	—	—	—	—	—
1	40	14,5	1,85	1,33	—	—	—	—
1	40	15	2,26	1,78	1,43	—	—	—
1	40	15,5	2,67	2,12	1,81	1,59	1,26	—
1	40	16	3,12	2,45	2,11	1,89	1,75	1,63
1	60	14	5,22	4,75	4,41	4,16	3,94	3,72
1	60	14,5	5,69	5,18	4,82	4,56	4,37	4,2
1	60	15	6,15	5,61	5,22	4,94	4,74	4,59
1	60	15,5	6,59	6,03	5,61	5,3	5,09	4,94
1	60	16	6,94	6,46	5,99	5,66	5,42	5,26
1	80	14	9,84	9,69	9,53	9,4	9,31	9,26
1	80	14,5	10,2	10,1	9,94	9,81	9,72	9,66
1	80	15	10,49	10,5	10,35	10,21	10,11	10,04
1	80	15,5	10,64	10,88	10,74	10,59	10,49	10,41
1	80	16	10,57	11,22	11,12	10,97	10,86	10,78

Table D.4 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Net evaporation** [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 14 to 16] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.
1	100	14	14,54	15,05	15,3	15,47	15,63	15,79
1	100	14,5	14,65	15,37	15,66	15,85	16,01	16,17
1	100	15	14,63	15,64	16	16,21	16,38	16,54
1	100	15,5	14,38	15,86	16,33	16,55	16,73	16,89
1	100	16	13,83	15,99	16,62	16,88	17,07	17,23
1	120	14	19,04	20,42	21,2	21,76	22,23	22,64
1	120	14,5	18,86	20,59	21,48	22,07	22,56	22,98
1	120	15	18,48	20,68	21,72	22,37	22,88	23,3
1	120	15,5	17,83	20,67	21,92	22,64	23,17	23,61
1	120	16	16,82	20,55	22,07	22,89	23,45	23,91
1	140	14	23,37	25,7	27,08	28,06	28,84	29,51
1	140	14,5	22,89	25,69	27,25	28,3	29,12	29,8
1	140	15	22,17	25,57	27,37	28,52	29,37	30,07
1	140	15,5	21,14	25,33	27,42	28,7	29,6	30,33
1	140	16	19,68	24,22	27,41	28,84	29,82	30,57
1,5	40	14	1,04	—	—	—	—	—
1,5	40	14,5	1,4	1	—	—	—	—
1,5	40	15	1,73	1,32	1,06	—	—	—
1,5	40	15,5	2,08	1,59	1,33	1,16	0,97	—
1,5	40	16	2,48	1,85	1,55	1,38	1,27	1,18
1,5	60	14	4,16	3,7	3,4	3,17	3	2,84
1,5	60	14,5	4,59	4,06	3,72	3,5	3,32	3,19
1,5	60	15	5,03	4,43	4,05	3,8	3,62	3,49
1,5	60	15,5	5,47	4,81	4,37	4,09	3,89	3,76
1,5	60	16	5,87	5,2	4,71	4,38	4,16	4,01

Table D.4 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Net evaporation** [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 14 to 16] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.
1,5	80	14	8,22	7,94	7,72	7,57	7,47	7,41
1,5	80	14,5	8,6	8,34	8,1	7,93	7,82	7,76
1,5	80	15	8,93	8,74	8,48	8,29	8,17	8,09
1,5	80	15,5	9,16	9,13	8,86	8,65	8,51	8,42
1,5	80	16	9,2	9,49	9,23	9	8,85	8,74
1,5	100	14	12,48	12,8	12,92	13,02	13,13	13,25
1,5	100	14,5	12,66	13,14	13,29	13,38	13,49	13,61
1,5	100	15	12,71	13,44	13,64	13,74	13,85	13,96
1,5	100	15,5	12,57	13,69	13,98	14,1	14,2	14,3
1,5	100	16	12,19	13,88	14,3	14,44	14,54	14,64
1,5	120	14	16,61	17,76	18,4	18,87	19,28	19,66
1,5	120	14,5	16,51	17,96	18,7	19,2	19,62	20
1,5	120	15	16,25	18,1	18,97	19,52	19,95	20,33
1,5	120	15,5	15,75	18,15	19,21	19,82	20,27	20,66
1,5	120	16	14,94	18,09	19,4	20,09	20,58	20,97
1,5	140	14	20,63	22,72	23,98	24,89	25,63	26,29
1,5	140	14,5	20,24	22,75	24,18	25,16	25,94	26,61
1,5	140	15	19,66	22,68	24,33	25,41	26,22	26,91
1,5	140	15,5	18,8	22,5	24,43	25,62	26,49	27,2
1,5	140	16	17,6	22,19	24,45	25,8	26,74	27,47
2	40	14	0,84	—	—	—	—	—
2	40	14,5	1,12	0,8	—	—	—	—
2	40	15	1,39	1,05	0,84	—	—	—
2	40	15,5	1,7	1,27	1,05	0,91	0,77	—
2	40	16	2,05	1,48	1,23	1,09	0,99	0,92

Table D.4 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Net evaporation** [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 14 to 16] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.
2	60	14	3,45	3,03	2,76	2,57	2,42	2,29
2	60	14,5	3,83	3,34	3,03	2,83	2,68	2,57
2	60	15	4,24	3,66	3,31	3,08	2,93	2,81
2	60	15,5	4,66	4	3,59	3,33	3,16	3,04
2	60	16	5,07	4,36	3,88	3,58	3,39	3,25
2	80	14	7,03	6,71	6,49	6,33	6,24	6,17
2	80	14,5	7,41	7,09	6,83	6,66	6,55	6,47
2	80	15	7,74	7,46	7,18	6,98	6,85	6,77
2	80	15,5	8,01	7,83	7,53	7,31	7,16	7,06
2	80	16	8,12	8,2	7,88	6,63	7,46	7,35
2	100	14	10,88	11,07	11,13	11,2	11,28	11,39
2	100	14,5	11,1	11,41	11,49	11,55	11,62	11,72
2	100	15	11,21	11,72	11,83	11,89	11,96	12,05
2	100	15,5	11,16	11,99	12,17	12,23	12,3	12,38
2	100	16	10,9	12,21	12,49	12,57	12,63	12,7
2	120	14	14,67	15,61	16,16	16,57	16,94	17,28
2	120	14,5	14,64	15,84	16,47	16,9	17,27	17,63
2	120	15	14,47	16,01	16,75	17,22	17,6	17,96
2	120	15,5	14,09	16,11	17	17,52	17,92	18,28
2	120	16	13,45	16,12	17,21	17,81	18,23	18,59
2	140	14	18,42	20,25	21,39	22,23	22,93	23,56
2	140	14,5	18,12	20,32	21,61	22,51	23,24	23,88
2	140	15	17,66	20,31	21,78	22,77	23,54	24,19
2	140	15,5	16,95	20,18	21,9	23	23,81	24,49
2	140	16	15,93	19,95	21,97	23	24,07	24,78

Table D.4 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Net evaporation** [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 14 to 16] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.
2,5	40	14	0,7	—	—	—	—	—
2,5	40	14,5	0,94	0,66	—	—	—	—
2,5	40	15	0,17	0,87	0,69	—	—	—
2,5	40	15,5	1,43	1,05	0,87	0,75	0,63	—
2,5	40	16	1,75	1,24	1,02	0,9	0,82	0,76
2,5	60	14	2,94	2,56	2,32	2,15	2,03	1,92
2,5	60	14,5	3,29	2,83	2,56	2,38	2,25	2,15
2,5	60	15	3,66	3,11	2,8	2,6	2,46	2,36
2,5	60	15,5	4,06	3,42	3,05	2,81	2,66	2,55
2,5	60	16	4,45	3,75	3,3	3,03	2,86	2,73
2,5	80	14	6,13	5,81	5,59	5,44	5,35	5,3
2,5	80	14,5	6,49	6,15	5,9	5,35	5,63	5,56
2,5	80	15	6,83	6,5	6,22	6,03	5,9	5,82
2,5	80	15,5	7,11	6,85	6,54	6,32	6,18	6,09
2,5	80	16	7,27	7,2	6,87	6,62	6,46	6,35
2,5	100	14	9,62	9,74	9,77	9,81	9,88	9,97
2,5	100	14,5	9,85	10,06	10,1	10,14	10,2	10,28
2,5	100	15	10	10,37	10,43	10,46	10,52	10,59
2,5	100	15,5	10,01	10,64	10,75	10,78	10,83	10,89
2,5	100	16	9,84	10,88	11,06	11,1	11,14	11,19
2,5	120	14	13,1	13,9	14,37	14,73	15,07	15,4
2,5	120	14,5	13,13	14,13	14,67	15,05	15,4	15,72
2,5	120	15	13,05	14,32	14,95	15,36	15,72	16,04
2,5	120	15,5	12,77	14,45	15,2	15,66	16,03	16,35
2,5	120	16	12,25	14,51	15,43	15,95	16,33	16,66

Table D.4 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Net evaporation** [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 14 to 16] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.
2,5	140	14	16,64	18,24	19,25	20,03	20,69	21,29
2,5	140	14,5	16,43	18,34	19,48	20,31	21	21,61
2,5	140	15	16,04	18,37	19,67	20,57	21,29	21,92
2,5	140	15,5	15,47	18,31	19,82	20,81	21,57	22,21
2,5	140	16	14,56	18,13	19,91	21,02	21,83	22,5
3	40	14	0,6	—	—	—	—	—
3	40	14,5	0,8	0,57	—	—	—	—
3	40	15	1,01	0,74	0,59	—	—	—
3	40	15,5	1,24	0,9	0,74	0,64	0,54	—
3	40	16	1,52	1,06	0,87	0,76	0,69	0,64
3	60	14	2,57	2,22	2	1,85	1,74	1,65
3	60	14,5	2,88	2,46	2,21	2,05	1,94	1,85
3	60	15	3,22	2,71	2,42	2,24	2,12	2,03
3	60	15,5	3,59	2,98	2,64	2,43	2,29	2,2
3	60	16	3,96	3,28	2,87	2,63	2,47	2,36
3	80	14	5,43	5,12	4,9	4,77	4,69	4,64
3	80	14,5	5,77	5,43	5,19	5,03	4,94	4,87
3	80	15	6,09	5,76	5,48	5,3	5,18	5,11
3	80	15,5	6,37	6,08	5,78	5,57	5,43	3,35
3	80	16	6,57	6,41	6,09	5,84	5,69	5,59
3	100	14	8,61	8,68	8,69	8,73	8,79	8,87
3	100	14,5	8,84	8,99	9	9,03	9,08	9,16
3	100	15	9,01	9,28	9,32	9,33	9,37	9,44
3	100	15,5	9,07	9,55	9,62	9,63	9,67	9,72
3	100	16	8,99	9,79	9,92	9,94	9,96	10,01

Table D.4 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Net evaporation** [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 14 to 16] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.
3	120	14	11,83	12,5	12,92	13,25	13,56	13,86
3	120	14,5	11,91	12,74	13,2	13,55	13,86	14,17
3	120	15	11,87	12,94	13,48	13,85	14,17	14,47
3	120	15,5	11,67	13,09	13,73	14,14	14,47	14,77
3	120	16	11,22	13,18	13,96	14,42	14,76	15,07
3	140	14	15,16	16,58	17,49	18,2	18,83	19,4
3	140	14,5	15,03	16,7	17,72	18,48	19,13	19,71
3	140	15	14,42	16,76	17,92	18,74	19,41	20,01
3	140	15,5	14,21	16,73	18,08	18,97	19,69	20,3
3	140	16	13,46	16,61	18,19	19,19	19,95	20,58
Values for grain initial moisture content from 30 % w.b. to 40 % w.b.								
			30 % w.b.	32 % w.b.	34 % w.b.	36 % w.b.	38 % w.b.	40 % w.b.
0,25	40	14	—	—	—	—	—	—
0,25	40	14,5	—	—	—	—	—	—
0,25	40	15	—	—	—	—	—	—
0,25	40	15,5	—	—	—	—	—	—
0,25	40	16	—	—	—	—	—	—
0,25	60	14	—	—	—	—	—	—
0,25	60	14,5	—	—	—	—	—	—
0,25	60	15	7,19	—	—	—	—	—
0,25	60	15,5	8,44	8,15	7,69	—	—	—
0,25	60	16	9,11	8,95	8,78	8,6	8,39	8,05
0,25	80	14	12,98	12,56	—	—	—	—
0,25	80	14,5	13,76	13,56	13,29	12,83	—	—
0,25	80	15	14,35	14,24	14,09	13,91	13,67	13,26
0,25	80	15,5	14,84	14,76	14,67	14,56	14,44	14,31
0,25	80	16	15,26	15,21	15,15	15,08	15	14,93

Table D.4 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Net evaporation** [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 14 to 16] % w.b.	30 % w.b.	32 % w.b.	34 % w.b.	36 % w.b.	38 % w.b.	40 % w.b.
0,25	100	14	19,65	19,61	19,54	19,44	19,27	19,02
0,25	100	14,5	20,08	20,08	20,05	20	19,93	19,83
0,25	100	15	20,45	20,47	20,46	20,45	20,42	20,39
0,25	100	15,5	20,78	20,81	20,82	20,82	20,82	20,81
0,25	100	16	21,06	21,1	21,13	21,15	21,16	21,17
0,25	120	14	25,56	25,64	25,7	25,75	25,79	25,82
0,25	120	14,5	25,86	25,95	26,03	26,09	26,15	26,21
0,25	120	15	26,12	26,23	26,31	26,39	26,46	26,54
0,25	120	15,5	26,38	26,47	26,56	26,65	26,73	26,81
0,25	120	16	26,63	26,72	26,8	26,88	26,96	27,05
0,25	140	14	31,21	31,38	31,53	31,67	31,81	31,96
0,25	140	14,5	31,49	31,65	31,79	31,94	32,09	32,24
0,25	140	15	31,77	31,91	32,05	32,18	32,33	32,48
0,25	140	15,5	32,04	32,18	32,31	32,43	32,56	32,7
0,25	140	16	32,3	32,44	32,56	32,68	32,79	32,93
0,5	40	14	—	—	—	—	—	—
0,5	40	14,5	—	—	—	—	—	—
0,5	40	15	—	—	—	—	—	—
0,5	40	15,5	—	—	—	—	—	—
0,5	40	16	—	—	—	—	—	—
0,5	60	14	—	—	—	—	—	—
0,5	60	14,5	5,7	—	—	—	—	—
0,5	60	15	6,46	6,26	6,04	5,56	—	—
0,5	60	15,5	6,99	6,86	6,74	6,61	6,48	6,3
0,5	60	16	7,44	7,34	7,24	7,16	7,09	7,02

Table D.4 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Net evaporation** [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 14 to 16] % w.b.	30 % w.b.	32 % w.b.	34 % w.b.	36 % w.b.	38 % w.b.	40 % w.b.
0,5	80	14	12,09	12,04	11,97	11,89	11,78	11,61
0,5	80	14,5	12,6	12,57	12,53	12,49	12,44	12,38
0,5	80	15	13,07	13,05	13,03	13	12,98	12,95
0,5	80	15,5	13,49	13,48	13,47	13,46	13,45	13,44
0,5	80	16	13,89	13,88	13,88	13,87	13,87	13,88
0,5	100	14	19,26	19,37	19,47	19,55	19,62	19,68
0,5	100	14,5	19,64	19,77	19,87	19,96	20,04	20,11
0,5	100	15	20,01	20,14	20,25	20,34	20,42	20,5
0,5	100	15,5	20,35	20,48	20,59	20,69	20,78	20,85
0,5	100	16	20,66	20,8	20,92	21,02	21,1	21,18
0,5	120	14	26,17	26,42	26,63	26,8	26,96	27,09
0,5	120	14,5	26,48	26,73	26,94	27,11	27,26	27,4
0,5	120	15	26,76	27,01	27,22	27,4	27,55	27,68
0,5	120	15,5	27,02	27,28	27,49	27,67	27,82	27,95
0,5	120	16	27,27	27,53	27,74	27,92	28,06	28,19
0,5	140	14	32,78	33,13	33,41	33,65	33,85	34,03
0,5	140	14,5	33,02	33,37	33,66	33,89	34,09	34,27
0,5	140	15	33,24	33,6	33,88	34,12	34,32	34,49
0,5	140	15,5	33,45	33,8	34,21	34,33	34,53	34,7
0,5	140	16	33,62	33,99	34,28	34,52	34,72	34,89
1	40	14	—	—	—	—	—	—
1	40	14,5	—	—	—	—	—	—
1	40	15	—	—	—	—	—	—
1	40	15,5	—	—	—	—	—	—
1	40	16	1,53	—	—	—	—	—

Table D.4 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Net evaporation** [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 14 to 16] % w.b.	30 % w.b.	32 % w.b.	34 % w.b.	36 % w.b.	38 % w.b.	40 % w.b.
1	60	14	3,4	—	—	—	—	—
1	60	14,5	4,05	3,9	3,67	—	—	—
1	60	15	4,47	4,36	4,27	4,18	4,05	3,77
1	60	15,5	4,82	4,73	4,65	4,6	4,55	4,5
1	60	16	5,13	5,05	4,98	4,93	4,9	4,88
1	80	14	9,23	9,21	9,2	9,21	9,22	9,23
1	80	14,5	9,63	9,62	9,62	9,63	9,65	9,68
1	80	15	10,01	10	10	10,02	10,04	10,08
1	80	15,5	10,38	10,36	10,36	10,38	10,41	10,45
1	80	16	10,73	10,71	10,71	10,73	10,76	10,79
1	100	14	15,94	16,11	16,27	16,43	16,59	16,75
1	100	14,5	16,32	16,48	16,64	16,05	16,97	17,13
1	100	15	16,69	16,85	17	17,16	17,33	17,49
1	100	15,5	17,04	17,2	17,35	17,51	17,67	17,83
1	100	16	17,38	17,54	17,69	17,84	18	18,16
1	120	14	23,02	23,37	23,7	24,2	24,32	24,61
1	120	14,5	23,36	23,71	24,04	24,35	24,65	24,94
1	120	15	23,68	24,04	24,36	24,67	24,97	25,25
1	120	15,5	24	24,35	24,67	24,98	25,57	25,55
1	120	16	24,3	24,65	24,97	25,28	25,56	25,84
1	140	14	30,09	30,62	31,1	31,54	31,96	32,33
1	140	14,5	30,39	30,92	31,4	31,84	32,24	32,62
1	140	15	30,67	31,21	31,68	32,12	32,52	32,89
1	140	15,5	30,94	31,48	31,96	32,39	32,79	33,15
1	140	16	31,2	31,74	32,22	32,65	33,05	33,4

Table D.4 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Net evaporation** [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 14 to 16] % w.b.	30 % w.b.	32 % w.b.	34 % w.b.	36 % w.b.	38 % w.b.	40 % w.b.
1,5	40	14	—	—	—	—	—	—
1,5	40	14,5	—	—	—	—	—	—
1,5	40	15	—	—	—	—	—	—
1,5	40	15,5	—	—	—	—	—	—
1,5	40	16	1,1	—	—	—	—	—
1,5	60	14	2,66	—	—	—	—	—
1,5	60	14,5	3,08	2,97	2,85	2,56	—	—
1,5	60	15	3,39	3,31	3,24	3,18	3,11	3,01
1,5	60	15,5	3,66	3,58	3,53	3,48	3,45	3,42
1,5	60	16	3,91	3,83	3,77	3,74	3,71	3,69
1,5	80	14	7,38	7,36	7,36	7,37	7,39	7,42
1,5	80	14,5	7,72	7,7	7,7	7,72	7,74	7,78
1,5	80	15	8,05	8,02	8,03	8,04	8,07	8,11
1,5	80	15,5	8,37	8,34	8,34	8,35	8,37	8,42
1,5	80	16	8,68	8,64	8,64	8,65	8,67	8,71
1,5	100	14	13,38	13,53	13,68	13,84	14,01	14,18
1,5	100	14,5	13,74	13,88	14,03	14,19	14,36	14,53
1,5	100	15	14,08	14,22	14,37	14,53	14,69	14,86
1,5	100	15,5	14,42	14,55	14,7	14,85	15,01	15,18
1,5	100	16	14,75	14,88	15,02	15,17	15,33	15,49
1,5	120	14	20,02	20,37	20,72	21,06	21,4	21,73
1,5	120	14,5	20,36	20,71	21,06	21,39	21,73	22,06
1,5	120	15	20,69	21,04	21,38	21,72	22,05	22,38
1,5	120	15,5	21,02	21,37	21,7	22,05	22,36	22,68
1,5	120	16	21,34	21,68	22,02	22,35	22,66	22,99

Table D.4 (*continued*)

Volumetric airflow	Drying air temperature	Final moisture content of grain	Net evaporation [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 14 to 16] % w.b.	30 % w.b.	32 % w.b.	34 % w.b.	36 % w.b.	38 % w.b.	40 % w.b.
1,5	140	14	26,89	27,46	27,99	28,5	28,99	29,46
1,5	140	14,5	27,21	27,77	28,31	28,81	29,3	29,76
1,5	140	15	27,52	28,08	28,62	29,12	29,6	30,06
1,5	140	15,5	27,82	28,85	28,92	29,42	29,89	30,35
1,5	140	16	28,1	28,68	29,21	29,7	30,17	30,63
2	40	14	—	—	—	—	—	—
2	40	14,5	—	—	—	—	—	—
2	40	15	—	—	—	—	—	—
2	40	15,5	—	—	—	—	—	—
2	40	16	0,86	—	—	—	—	—
2	60	14	2,15	1,9	—	—	—	—
2	60	14,5	2,48	2,4	2,3	2,15	—	—
2	60	15	2,73	2,66	2,61	2,56	2,51	2,45
2	60	15,5	2,95	2,88	2,84	2,8	2,78	2,76
2	60	16	3,16	3,09	3,04	3,01	2,99	2,97
2	80	14	6,14	6,12	6,13	6,14	6,16	6,19
2	80	14,5	6,43	6,42	6,41	6,43	6,46	6,49
2	80	15	6,72	6,7	6,69	6,71	6,74	6,77
2	80	15,5	7	6,97	6,97	6,98	7	7,04
2	80	16	7,28	7,25	7,23	7,24	7,26	7,29
2	100	14	11,51	11,64	11,78	11,93	12,09	12,26
2	100	14,5	11,84	11,96	12,1	12,25	12,41	12,57
2	100	15	12,16	12,28	12,41	12,56	12,72	12,88
2	100	15,5	12,48	12,59	12,72	12,86	13,02	13,18
2	100	16	12,79	12,9	13,02	13,16	13,31	13,47

Table D.4 (*continued*)

Volumetric airflow	Drying air temperature	Final moisture content of grain	Net evaporation [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 14 to 16] % w.b.	30 % w.b.	32 % w.b.	34 % w.b.	36 % w.b.	38 % w.b.	40 % w.b.
2	120	14	17,63	17,97	18,31	18,65	18,99	19,33
2	120	14,5	17,96	18,3	18,64	18,97	19,31	19,65
2	120	15	18,29	18,63	18,96	19,29	19,62	19,96
2	120	15,5	18,61	18,94	19,27	19,6	19,93	20,26
2	120	16	18,93	19,26	19,58	19,9	20,23	20,56
2	140	14	24,15	24,71	25,25	25,78	26,29	26,8
2	140	14,5	24,48	25,03	25,57	26,1	26,61	27,11
2	140	15	24,79	25,35	25,89	26,41	26,91	27,41
2	140	15,5	25,1	25,66	26,19	26,71	27,22	27,71
2	140	16	25,39	25,96	26,49	27,01	27,51	28
2,5	40	14	—	—	—	—	—	—
2,5	40	14,5	—	—	—	—	—	—
2,5	40	15	—	—	—	—	—	—
2,5	40	15,5	—	—	—	—	—	—
2,5	40	16	0,71	—	—	—	—	—
2,5	60	14	1,8	1,63	—	—	—	—
2,5	60	14,5	2,08	2	1,93	1,81	—	—
2,5	60	15	2,28	2,23	2,18	2,14	2,1	2,05
2,5	60	15,5	2,47	2,42	2,38	2,35	2,32	2,31
2,5	60	16	2,65	2,59	2,55	2,52	2,5	2,49
2,5	80	14	5,26	5,25	5,25	5,26	5,28	5,31
2,5	80	14,5	5,53	5,51	5,51	5,52	5,54	5,57
2,5	80	15	5,78	5,75	5,75	5,76	5,78	5,82
2,5	80	15,5	6,03	6	5,99	6	6,02	6,05
2,5	80	16	6,28	6,24	6,23	6,23	6,25	6,28

Table D.4 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Net evaporation** [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 14 to 16] % w.b.	30 % w.b.	32 % w.b.	34 % w.b.	36 % w.b.	38 % w.b.	40 % w.b.
2,5	100	14	10,08	10,2	10,34	10,48	10,63	10,78
2,5	100	14,5	10,38	10,5	10,63	10,77	10,92	11,08
2,5	100	15	10,68	10,8	10,92	11,06	11,21	11,36
2,5	100	15,5	10,98	11,09	11,21	11,34	11,48	11,64
2,5	100	16	11,27	11,38	11,49	11,62	11,76	11,91
2,5	120	14	15,72	16,47	16,37	16,7	17,03	17,37
2,5	120	14,5	16,05	16,36	16,69	17,15	17,34	17,68
2,5	120	15	16,36	16,68	17	17,32	17,65	17,98
2,5	120	15,5	16,67	16,98	17,3	17,62	17,94	18,27
2,5	120	16	16,98	17,29	17,6	17,92	18,23	18,56
2,5	140	14	21,86	22,41	22,94	23,47	23,99	24,5
2,5	140	14,5	22,18	22,73	23,26	23,78	24,3	24,81
2,5	140	15	22,49	23,04	23,57	24,09	24,61	25,11
2,5	140	15,5	22,8	23,35	23,88	24,4	24,91	25,08
2,5	140	16	23,1	23,65	24,18	24,69	25,2	25,7
3	40	14	—	—	—	—	—	—
3	40	14,5	—	—	—	—	—	—
3	40	15	—	—	—	—	—	—
3	40	15,5	—	—	—	—	—	—
3	40	16	0,6	—	—	—	—	—
3	60	14	1,55	1,41	—	—	—	—
3	60	14,5	1,78	1,72	1,66	1,56	—	—
3	60	15	1,97	1,91	1,87	1,84	1,81	1,76
3	60	15,5	2,13	2,08	2,04	2,02	2	1,98
3	60	16	2,28	2,23	2,19	2,17	2,15	2,14

Table D.4 (*continued*)

Volumetric airflow [range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	**Drying air temperature** [range: 40 to 140] °C	**Final moisture content of grain** [range: 14 to 16] % w.b.	**Net evaporation** [a] g(water)/kg(dry air) **Grain initial moisture content** 30 % w.b.	32 % w.b.	34 % w.b.	36 % w.b.	38 % w.b.	40 % w.b.
3	80	14	4,61	4,59	4,59	4,6	4,62	4,65
3	80	14,5	4,84	4,82	4,82	4,83	4,85	4,88
3	80	15	5,07	5,05	5,04	5,05	5,07	5,1
3	80	15,5	5,3	5,27	5,26	5,26	5,28	5,31
3	80	16	5,52	5,49	5,47	5,47	5,49	5,51
3	100	14	8,97	9,08	9,2	9,34	9,48	9,63
3	100	14,5	9,25	9,36	9,48	9,61	9,75	9,9
3	100	15	9,53	9,63	9,75	9,87	10,01	10,16
3	100	15,5	9,8	9,9	10,01	10,14	10,27	10,42
3	100	16	10,08	10,17	10,28	10,39	10,53	10,67
3	120	14	14,17	14,48	14,8	15,11	15,44	15,76
3	120	14,5	14,47	14,79	15,1	15,41	15,73	16,05
3	120	15	14,78	15,08	15,39	15,7	16,02	16,34
3	120	15,5	15,77	15,38	15,68	15,99	16,3	16,62
3	120	16	15,37	15,67	15,97	16,27	16,58	16,9
3	140	14	19,94	20,47	21	21,51	22,03	22,53
3	140	14,5	20,26	20,79	21,31	21,82	22,33	22,84
3	140	15	20,56	21,09	21,61	22,13	22,63	23,14
3	140	15,5	20,86	21,39	21,91	22,42	22,93	23,43
3	140	16	21,15	21,69	22,21	22,71	23,22	23,72

Ambient air conditions:

— temperature 15 °C,
— relative humidity 80 %,
— specific humidity 8,505 g/kg.

[a] Gaps in the table for drying air temperature of 40 °C and 60 °C represent untenable drying regimes where very long residence times allow excessive rewetting during cooling.

Table D.5 — Rice — Effect of grain moisture content range, drying air temperature and volumetric airflow in multi-pass drying

Volumetric airflow	Drying air temperature	Net evaporation g(water)/kg(dry air)						
		Grain initial moisture content range % w.b.						
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 35 to 60] °C	28 to 25	25 to 23	23 to 21	21 to 19	19 to 17	17 to 15	15 to 13
0,25	35	5,49	5,28	5,27	5,25	5,23	5,21	5,18
0,25	40	6,63	6,31	6,29	6,26	6,24	6,21	6,17
0,25	45	7,75	7,3	7,28	7,25	7,22	7,18	7,13
0,25	50	8,86	8,28	8,25	8,22	8,18	8,13	8,07
0,25	55	9,95	9,24	9,2	9,16	9,11	9,06	8,98
0,25	60	11,03	10,18	10,13	10,09	10,03	9,97	9,88
0,25	35	5,45	5,22	5,21	5,19	5,16	5,13	5,09
0,25	40	6,57	6,23	6,2	6,17	6,14	6,1	6,05
0,25	45	7,67	7,2	7,17	7,14	7,09	7,04	6,98
0,25	50	8,76	8,16	8,12	8,08	8,03	7,96	7,88
0,25	55	9,85	9,1	9,05	9	8,94	8,87	8,77
0,25	60	10,91	10,02	9,96	9,9	9,84	9,76	9,66
1	35	5,39	5,14	5,12	5,09	5,06	5,02	4,97
1	40	6,48	6,12	6,08	6,05	6	5,95	5,88
1	45	7,56	7,06	7,02	6,97	6,91	6,85	6,76
1	50	8,62	7,98	7,93	7,88	7,81	7,72	7,62
1	55	9,68	8,9	8,83	8,76	8,68	8,59	8,47
1	60	10,72	9,78	9,72	9,64	9,55	9,44	9,3
1,5	35	5,34	5,08	5,06	5,02	4,98	4,94	4,88
1,5	40	6,41	6,03	6	5,95	5,9	5,83	5,75
1,5	45	7,47	6,96	6,91	6,85	6,78	6,7	6,6
1,5	50	8,51	7,86	7,79	7,72	7,64	7,55	7,43
1,5	55	9,55	8,74	8,66	8,59	8,49	8,39	8,24
1,5	60	10,57	9,62	9,54	9,44	9,33	9,2	9,05

Table D.5 (*continued*)

Volumetric airflow	**Drying air temperature**	**Net evaporation** g(water)/kg(dry air)						
		Grain initial moisture content range % w.b.						
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 35 to 60] °C	28 to 25	25 to 23	23 to 21	21 to 19	19 to 17	17 to 15	15 to 13
2	35	5,3	5,03	5	4,97	4,92	4,87	4,8
2	40	6,36	5,97	5,92	5,87	5,81	5,74	5,65
2	45	7,39	6,87	6,81	6,75	6,67	6,58	6,47
2	50	8,42	7,75	7,68	7,6	7,52	7,41	7,28
2	55	9,43	8,61	8,54	8,45	8,35	8,22	8,07
2	60	10,44	9,47	9,38	9,28	9,16	9,01	8,84
2,5	35	5,27	4,99	4,96	4,92	4,87	4,81	4,74
2,5	40	6,31	5,91	5,86	5,8	5,74	5,66	5,56
2,5	45	7,33	6,79	6,73	6,66	6,58	6,48	6,37
2,5	50	8,34	7,65	7,58	7,5	7,41	7,29	7,15
2,5	55	9,33	8,51	8,42	8,33	8,21	8,08	7,91
2,5	60	10,33	9,34	9,25	9,14	9,01	8,86	8,67
3	35	5,24	4,95	4,92	4,87	4,82	4,76	4,64
3	40	6,26	5,85	5,8	5,74	5,67	5,59	5,48
3	45	7,27	6,73	6,66	6,58	6,5	6,4	6,27
3	50	8,26	7,58	7,49	7,41	7,31	7,18	7,03
3	55	9,25	8,42	8,32	8,22	8,1	7,96	7,78
3	60	10,23	9,24	9,13	9,02	8,88	8,72	8,52

Ambient air conditions:

— temperature 15 °C,
— relative humidity 80 %,
— specific humidity 8,505 g/kg.

Table D.6 — Sorghum — Effect of grain initial and final moisture content, drying air temperature and volumetric airflow

Volumetric airflow	Drying air temperature	Final moisture content of grain	Net evaporation [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 10 to 15] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.
0,25	40	10	—	—	—	—	—	—
0,25	40	11	—	—	—	—	—	—
0,25	40	12	—	—	—	—	—	—
0,25	40	13	—	—	—	—	—	—
0,25	40	14	4,64	4,73	4,73	4,63	4,35	—
0,25	40	15	5,26	5,51	5,63	5,68	5,68	5,66
0,25	60	10	—	—	—	—	—	—
0,25	60	11	—	—	—	—	—	—
0,25	60	12	8,73	8,9	8,94	8,86	8,61	7,66
0,25	60	13	9,56	9,89	10,08	10,16	10,18	10,15
0,25	60	14	10,06	10,56	10,83	10,97	11,05	11,09
0,25	60	15	10,25	10,99	11,37	11,55	11,66	11,73
0,25	80	10	13,41	13,64	13,72	13,63	13,3	11,37
0,25	80	11	14,54	14,9	15,14	15,26	15,31	15,3
0,25	80	12	15,26	15,76	16,06	16,23	16,34	16,41
0,25	80	13	15,64	16,31	16,71	16,92	17,06	17,15
0,25	80	14	15,74	16,62	17,12	17,39	17,57	17,69
0,25	80	15	15,54	16,77	17,4	17,73	17,94	18,09
0,25	100	10	20,69	21,14	21,46	21,63	21,77	21,85
0,25	100	11	21,41	21,98	22,35	22,56	22,7	22,8
0,25	100	12	21,74	22,48	22,95	23,23	23,39	23,51
0,25	100	13	21,81	22,77	23,31	23,64	23,87	24,02
0,25	100	14	21,65	22,89	23,57	23,96	24,22	24,41
0,25	100	15	21,11	22,87	23,73	24,2	24,51	24,74

Table D.6 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Net evaporation** [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 10 to 15] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.
0,25	120	10	27,97	28,59	28,96	28,23	29,38	29,48
0,25	120	11	28,26	29,04	29,56	29,87	30,12	30,19
0,25	120	12	28,25	29,26	29,82	30,18	30,51	30,69
0,25	120	13	28,01	29,31	30,07	30,5	30,79	31
0,25	120	14	27,53	29,22	30,12	30,69	31,03	31,27
0,25	120	15	26,49	28,95	30,23	30,78	31,22	31,52
0,25	140	10	34,91	35,79	36,29	36,61	36,79	36,91
0,25	140	11	34,84	35,86	36,49	36,88	37,12	37,3
0,25	140	12	34,55	35,84	36,59	37,06	37,37	37,6
0,25	140	13	34,03	35,7	36,64	37,21	37,61	37,84
0,25	140	14	33,15	35,39	36,57	37,29	37,77	38,09
0,25	140	15	31,68	34,87	36,42	37,31	37,88	38,22
0,5	40	100	—	—	—	—	—	—
0,5	40	11	—	—	—	—	—	—
0,5	40	12	—	—	—	—	—	—
0,5	40	13	2,76	2,56	—	—	—	—
0,5	40	14	3,61	3,59	3,56	3,53	3,48	3,38
0,5	40	15	4,25	4,28	4,3	4,33	4,34	4,36
0,5	60	10	4,38	—	—	—	—	—
0,5	60	11	6,28	6,15	5,96	5,63	—	—
0,5	60	12	7,46	7,47	7,45	7,42	7,38	7,3
0,5	60	13	8,34	8,43	8,49	8,52	8,55	8,56
0,5	60	14	9	9,2	9,3	9,37	9,42	9,46
0,5	60	15	9,43	9,81	9,97	10,07	10,13	10,18

Table D.6 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Net evaporation** [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 10 to 15] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.
0,5	80	10	12,21	12,28	12,32	12,31	12,29	12,23
0,5	80	11	13,42	13,58	13,69	13,78	13,85	13,91
0,5	80	12	14,32	14,56	14,73	14,85	14,96	15,04
0,5	80	13	14,92	15,33	15,56	15,71	15,83	15,93
0,5	80	14	15,23	15,87	16,21	16,4	16,54	16,65
0,5	80	15	15,18	16,19	16,68	16,94	17,11	17,24
0,5	100	10	19,78	20,09	20,36	20,57	20,75	20,9
0,5	100	11	20,75	21,14	21,41	21,63	21,82	21,99
0,5	100	12	21,35	21,91	22,25	22,48	22,67	22,83
0,5	100	13	21,36	22,4	22,84	23,13	23,34	23,5
0,5	100	14	21,5	22,63	23,24	23,58	23,83	24,02
0,5	100	15	20,86	22,59	23,38	23,83	24,15	24,4
0,5	120	10	27,74	28,19	28,44	28,73	28,99	29,22
0,5	120	11	28,25	28,94	29,32	29,52	29,84	30,07
0,5	120	12	28,28	29,23	29,77	30,17	30,39	30,63
0,5	120	13	28,01	29,26	29,26	30,46	30,77	31,03
0,5	120	14	27,4	29,11	30,02	30,6	30,95	31,27
0,5	120	15	26,15	28,73	29,94	30,61	31,07	31,38
0,5	140	10	35,17	36	36,47	36,94	34,14	37,37
0,5	140	11	35,1	36,21	36,84	37,35	37,59	37,89
0,5	140	12	34,79	36,09	36,9	37,41	37,81	38,11
0,5	140	13	34,18	35,89	36,83	37,44	37,86	38,23
0,5	140	14	33,18	35,47	36,68	37,4	37,91	38,29
0,5	140	15	31,31	34,88	36,42	37,35	37,9	38,36

Table D.6 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Net evaporation** [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 10 to 15] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.
1	40	10	—	—	—	—	—	—
1	40	11	—	—	—	—	—	—
1	40	12	—	—	—	—	—	—
1	40	13	1,84	1,71	1,56	—	—	—
1	40	14	2,44	2,35	2,29	2,25	2,22	2,19
1	40	15	2,98	2,88	2,82	2,81	2,8	2,81
1	60	10	3,43	3,07	—	—	—	—
1	60	11	4,67	4,47	4,32	4,16	3,99	3,74
1	60	12	5,69	5,51	5,38	5,29	5,23	5,17
1	60	13	6,59	6,4	6,28	6,2	6,16	6,13
1	60	14	7,38	7,21	7,08	6,99	6,94	6,92
1	60	15	8,05	7,93	7,8	7,71	7,65	7,62
1	80	10	9,93	9,7	9,54	9,43	9,36	9,29
1	80	11	11,34	11,12	10,95	10,85	10,79	10,75
1	80	12	12,52	12,33	12,17	12,06	12	11,96
1	80	13	13,46	13,36	13,22	13,12	13,05	13,01
1	80	14	14,07	14,19	14,12	14,04	13,98	13,93
1	80	15	14,02	14,82	14,87	14,83	14,79	14,74
1	100	10	17,54	17,47	17,4	17,38	17,39	17,44
1	100	11	18,97	18,9	18,83	18,79	18,79	18,82
1	100	12	20,04	20,09	20,04	20	19,99	20
1	100	13	20,61	21,01	21,05	21,04	21,03	21,03
1	100	14	20,32	21,74	21,83	21,89	21,91	21,93
1	100	15	19,22	21,78	22,43	22,54	22,63	22,67

Table D.6 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Net evaporation** [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 10 to 15] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.
1	120	10	26,01	26,03	26,13	26,24	26,37	26,51
1	120	11	27,26	27,32	27,35	27,44	27,57	27,69
1	120	12	27,38	28,37	28,47	28,46	28,57	28,68
1	120	13	26,77	28,66	29,26	29,41	29,39	29,5
1	120	14	25,65	28,38	29,51	29,95	30,04	30,27
1	120	15	23,9	27,62	29,4	30,13	30,54	30,78
1	140	10	34,41	34,93	35,23	35,38	35,48	35,71
1	140	11	34,17	35,64	36,07	36,34	36,6	36,67
1	140	12	33,45	35,6	36,43	36,85	37,23	37,46
1	140	13	32,33	35,14	36,5	37,06	37,47	37,88
1	140	14	30,79	34,35	36,2	37,11	37,71	38,07
1	140	15	28,55	32,8	35,75	36,99	37,64	38,12
1,5	40	10	—	—	—	—	—	—
1,5	40	11	—	—	—	—	—	—
1,5	40	12	—	—	—	—	—	—
1,5	40	13	1,37	1,27	1,17	1,01	—	—
1,5	40	14	1,84	1,75	1,69	1,65	1,63	1,6
1,5	40	15	2,3	2,17	2,1	2,07	2,06	2,06
1,5	60	10	2,72	2,47	2,11	—	—	—
1,5	60	11	3,73	3,52	3,37	3,24	3,12	2,97
1,5	60	12	4,63	4,38	4,23	4,12	4,05	3,99
1,5	60	13	5,5	5,21	5,02	4,9	4,82	4,77
1,5	60	14	6,34	6	5,77	5,62	5,51	5,45
1,5	60	15	7,08	6,76	6,48	6,29	6,17	6,09

Table D.6 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Net evaporation** [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 10 to 15] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.
1,5	80	10	8,35	8	7,77	7,61	7,5	7,42
1,5	80	11	9,84	9,41	9,11	8,92	8,78	8,7
1,5	80	12	11,21	10,73	10,37	10,13	9,96	9,85
1,5	80	13	12,33	11,93	11,55	11,26	11,05	10,9
1,5	80	14	12,88	12,96	12,61	12,3	12,06	11,89
1,5	80	15	12,83	13,65	13,53	13,25	13	12,81
1,5	100	10	15,72	15,32	15,05	14,89	14,82	14,77
1,5	100	11	17,45	16,99	16,65	16,44	16,31	16,22
1,5	100	12	18,57	18,5	18,12	17,85	17,68	17,55
1,5	100	13	19	19,59	19,43	19,16	18,95	18,77
1,5	100	14	18,75	20,14	20,48	20,29	20,08	19,89
1,5	100	15	17,76	20,14	21,07	21,23	21,08	20,89
1,5	120	10	24,16	14,15	24,03	23,92	23,88	23,98
1,5	120	11	25,21	25,64	25,58	25,43	25,34	25,31
1,5	120	12	25,4	26,63	26,91	26,76	26,64	26,58
1,5	120	13	24,81	26,93	27,88	27,89	27,79	27,71
1,5	120	14	23,73	26,54	28,15	28,82	28,74	28,68
1,5	120	15	21,97	25,77	27,94	29,13	29,67	29,56
1,5	140	10	32,15	33,26	33,44	33,5	33,6	33,71
1,5	140	11	31,91	33,86	34,73	34,91	34,8	34,88
1,5	140	12	31,14	33,64	35,16	35,91	36,03	36,09
1,5	140	13	29,98	32,99	34,98	36,18	36,57	36,94
1,5	140	14	28,39	32,1	34,48	36,06	37,11	37,61
1,5	140	15	26,16	30,91	33,77	35,7	36,94	37,79

Table D.6 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Net evaporation** [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 10 to 15] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.
2	40	10	—	—	—	—	—	—
2	40	11	—	—	—	—	—	—
2	40	12	0,53	—	—	—	—	—
2	40	13	1,1	1,01	0,93	0,83	—	—
2	40	14	1,48	1,39	1,34	1,31	1,28	1,26
2	40	15	1,87	1,74	1,68	1,65	1,63	1,63
2	60	10	2,26	2,04	1,81	—	—	—
2	60	11	3,11	2,91	2,77	2,66	2,55	2,44
2	60	12	3,93	3,67	3,51	3,39	3,32	3,26
2	60	13	4,76	4,42	4,2	4,07	3,98	3,91
2	60	14	5,6	5,17	4,89	4,71	4,59	4,52
2	60	15	6,4	5,93	5,58	5,35	5,19	5,09
2	80	10	7,22	6,83	6,57	6,39	6,27	6,18
2	80	11	8,72	8,18	7,81	7,58	7,42	7,32
2	80	12	10,2	9,52	9,05	8,73	8,52	8,38
2	80	13	11,33	10,83	10,27	9,87	9,59	9,39
2	80	14	11,93	11,94	11,44	10,97	10,63	10,38
2	80	15	11,96	12,64	12,48	12,02	11,63	11,33
2	100	10	14,27	13,67	13,29	13,04	12,88	12,79
2	100	11	16,01	15,47	14,95	14,59	14,37	14,22
2	100	12	17,23	17,07	16,55	16,11	15,79	15,58
2	100	13	17,71	18,23	18,03	17,54	17,16	16,88
2	100	14	17,61	18,81	19,13	18,89	18,46	18,12
2	100	15	16,35	18,96	19,73	19,91	19,66	19,29

Table D.6 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Net evaporation** [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 10 to 15] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.
2	120	10	22,38	22,38	22,1	21,9	21,78	21,69
2	120	11	23,43	23,84	23,83	23,6	23,41	23,27
2	120	12	23,86	24,81	25,14	25,13	24,9	24,7
2	120	13	23,45	25,32	26,04	26,35	26,28	26,03
2	120	14	22,42	25,11	26,58	27,16	27,39	27,25
2	120	15	20,76	24,42	26,48	27,69	28,2	28,26
2	140	10	30,12	31,02	31,6	31,85	31,81	31,79
2	140	11	30,19	31,89	32,65	33,15	33,28	33,22
2	140	12	29,46	31,9	33,46	34,2	34,42	34,47
2	140	13	28,37	31,36	33,34	34,69	35,39	35,71
2	140	14	26,85	30,52	32,92	34,6	35,73	36,5
2	140	15	24,64	29,32	32,23	34,27	35,67	3,67
2,5	40	10	—	—	—	—	—	—
2,5	40	11	—	—	—	—	—	—
2,5	40	12	0,48	—	—	—	—	—
2,5	40	13	0,91	0,84	0,78	0,69	—	—
2,5	40	14	1,24	1,16	1,11	1,08	1,06	1,04
2,5	40	15	1,58	1,46	1,4	1,37	1,35	1,34
2,50	60	10	1,92	1,74	1,56	—	—	—
2,50	60	11	2,68	2,49	2,35	2,25	2,16	2,07
2,50	60	12	3,43	3,16	3	2,89	2,81	2,75
2,50	60	13	4,21	3,85	3,63	3,49	3,39	3,33
2,50	60	14	5,05	4,56	4,26	4,07	3,95	3,87
2,50	60	15	5,76	5,31	4,92	4,67	4,5	4,38

Table D.6 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Net evaporation** [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 10 to 15] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.
2,5	80	10	6,35	5,96	5,69	5,51	5,39	5,31
2,5	80	11	7,83	7,23	6,84	6,6	6,43	6,32
2,5	80	12	9,33	8,57	8,05	7,7	7,45	7,29
2,5	80	13	10,51	9,94	9,26	8,8	8,48	8,25
2,5	80	14	11,21	11,06	10,5	9,92	9,51	9,21
2,5	80	15	11,32	11,83	11,57	11,03	10,53	10,17
2,5	100	10	13,04	12,37	11,91	11,62	11,42	11,3
2,5	100	11	14,75	14,18	13,58	13,16	12,87	12,68
2,5	100	12	16,09	15,78	15,23	14,69	14,29	14,03
2,5	100	13	16,78	17,05	16,72	16,21	15,7	15,35
2,5	100	14	16,76	17,8	17,92	17,59	17,09	16,64
2,5	100	15	16	18,04	18,68	18,71	18,38	17,91
2,5	120	10	20,86	20,78	20,52	20,18	19,96	19,85
2,5	120	11	22,07	22,3	22,22	21,98	21,69	21,48
2,5	120	12	22,69	23,43	23,6	23,53	23,3	23,03
2,5	120	13	22,43	24,1	24,63	24,78	24,7	24,48
2,5	120	14	21,53	24,02	25,25	25,74	25,87	25,79
2,5	120	15	19,95	23,43	25,36	26,34	26,75	26,86
2,5	140	10	28,15	29,27	29,74	30	30,12	30,08
2,5	140	11	28,83	30,21	30,89	31,34	31,6	31,67
2,5	140	12	28,27	30,54	31,81	32,36	32,79	32,99
2,5	140	13	27,22	30,18	32,03	33,21	33,59	34,04
2,5	140	14	25,76	29,37	31,72	33,3	34,39	35,02
2,5	140	15	23,63	28,22	31,11	33,07	34,49	35,5

Table D.6 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Net evaporation** [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 10 to 15] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.
3	40	10	—	—	—	—	—	—
3	40	11	—	—	—	—	—	—
3	40	12	0,42	—	—	—	—	—
3	40	13	0,78	0,72	6,64	0,6	—	—
3	40	14	1,07	0,99	0,95	0,92	0,9	0,89
3	40	15	1,37	1,25	1,2	1,17	1,15	1,15
3	60	10	1,68	1,52	1,37	—	—	—
3	60	11	2,35	2,17	2,05	1,95	1,88	1,8
3	60	12	3,04	2,79	2,63	2,52	2,44	2,39
3	60	13	3,78	3,42	3,2	3,06	2,96	2,9
3	60	14	4,59	4,09	3,79	3,6	3,47	3,39
3	60	15	5,3	4,82	4,41	4,15	3,98	3,86
3	80	10	5,7	5,29	5,03	4,86	4,74	4,65
3	80	11	7,11	6,48	6,11	5,85	5,68	5,56
3	80	12	8,59	7,8	7,24	6,87	6,63	6,47
3	80	13	9,82	9,16	8,45	7,95	7,61	7,37
3	80	14	10,61	10,33	9,7	9,06	8,61	8,29
3	80	15	10,81	11,17	10,8	10,2	9,64	9,23
3	100	10	11,98	11,31	10,81	10,48	10,27	10,13
3	100	11	13,69	13,08	12,45	11,99	11,66	11,45
3	100	12	15,12	14,68	14,1	13,51	13,07	12,76
3	100	13	16,01	16,03	15,59	15,04	14,49	14,08
3	100	14	16,12	16,96	16,85	16,43	15,9	15,39
3	100	15	15,44	17,3	17,78	17,62	17,2	16,71

Table D.6 (*continued*)

Volumetric airflow	**Drying air temperature**	**Final moisture content of grain**	**Net evaporation** [a] g(water)/kg(dry air)					
			Grain initial moisture content					
[range: 0,25 to 3] $m^3 \cdot s^{-1} \cdot m^{-3}$	[range: 40 to 140] °C	[range: 10 to 15] % w.b.	18 % w.b.	20 % w.b.	22 % w.b.	24 % w.b.	26 % w.b.	28 % w.b.
3	120	10	19,56	19,39	19,1	18,75	18,45	18,28
3	120	11	20,9	20,97	20,81	20,53	20,2	19,94
3	120	12	21,67	22,23	22,25	22,09	21,84	21,54
3	120	13	21,63	23	23,41	23,42	23,26	23,04
3	120	14	20,79	22,81	24,16	24,49	24,48	24,35
3	120	15	19,32	22,63	24,46	25,21	25,49	25,49
3	140	10	27,1	27,8	28,15	28,33	28,44	28,46
3	140	11	27,67	28,81	29,41	29,75	29,95	30,05
3	140	12	27,32	29,41	30,31	30,86	31,2	31,39
3	140	13	26,37	29,16	30,89	31,68	32,21	32,51
3	140	14	24,99	28,44	30,74	32,19	33,03	33,41
3	140	15	22,86	27,4	30,2	32,1	33,21	34,31

Ambient air conditions:

— temperature 15 °C,
— relative humidity 80 %,
— specific humidity 8,505 g/kg.

[a] Gaps in the table at drying air temperature of 40 °C and 60 °C represent untenable drying regimes where very long residence times allow excessive rewetting during cooling.

Annex E
(informative)

Airflow calculations

E.1 Airflow calculations

See annex A of ISO 11520-1:1997 for guidance on the following:

a) the derivation of formulae for apportioning air volume flow between drying and cooling beds of a drier;

b) the effect of standard inlet cone on airflows;

c) the estimation of total airflow from exhaust humidity.

E.2 Effect of crop change on air pressure and flow in a drier

The air volume flow rate delivered by a drier fan is given by the intersection of the fan performance curve and the system curve representing the combined resistance of the crop and the drier plenums and ducting. A change in crop type will alter the position of the system curve and result in a new intersection with the fan performance curve. The following procedure can be used to find the new operating conditions.

Obtain manufacturer's data for the performance of the fan and, if these are available only in tabular form, use multiple linear regression (or another numerical method) to express fan static pressure, p (in pascals) as a quadratic function of air volume flow rate, a (in cubic metres per second) and vice versa.

$$p = c_1 + c_2\, a + c_3\, a^2 \tag{E.1}$$

$$a = d_1 + d_2\, p + d_3\, p^2 \tag{E.2}$$

NOTE A quadratic function usually describes the curvature of the fan characteristic adequately over the usual operating range. The equations resulting from switching the dependent and independent variables do not, of course, give the same values, but the error is usually small.

Obtain an estimate of the pressure drop through the empty system by running the fan with the drier empty and measuring the fan static pressure and the pressure drop across the drier for a minimum of four flows created by an external baffle on the fan inlet or outlet. Express this system pressure, p_{sys} (in pascals) as a power function of air volume flow rate, a (in cubic metres per second).

$$p_{\mathrm{sys}} = i_{\mathrm{sys}} a^{n,\mathrm{sys}} \tag{E.3}$$

Substitute the fan static pressure, p_0, measured on test into the fan performance equation (E.2) to find the volume delivery, a_0, of the fan.

For the fan:

$$p_0 = c_1 + c_2\, a_0 + c_3\, a_0^2 \tag{E.4}$$

$$p_s = c_1 + c_2\, a_s + c_3\, a_s^2 \tag{E.5}$$

For the system:

$$p_o = di_o \left(\frac{a_o}{f} \right)^{n,o} + i_{sys} a_o{}^{n,sys} \tag{E.6}$$

$$p_s = di_s \left(\frac{a_s}{f} \right)^{n,s} + i_{sys} a_s{}^{n,sys} \tag{E.7}$$

where values of the coefficients i and n have either been measured for the specific crops concerned or can be taken from the following table.

Table E.1 — Values of the coefficients, i and n, in the power law equations (E.6 and E.7) describing the dependence of crop pressure resistance on air velocity

Crop type	i	n
Barley	6 281	1,39
Maize	4 963	1,53
Rapeseed	18 378	1,21
Rough rice	7 543	1,39
long	4 832	1,17
medium	9 261	1,46
short	7 319	1,5
Sorghum	9 558	1,53
Soybeans	2 839	1,43
Wheat	9 036	1,32

Equating fan and system pressures:

$$c_1 + c_2 a_o + c_3 a_o{}^2 = di_o \left(\frac{a_o}{f} \right)^{n,o} + i_{sys} a_o{}^{n,sys} \tag{E.8}$$

$$c_1 + c_2 a_s + c_3 a_s{}^2 = di_s \left(\frac{a_s}{f} \right)^{n,s} + i_{sys} a_s{}^{n,sys} \tag{E.9}$$

Dividing and rearranging:

$$\frac{c_1 + c_2 a_o + c_3 a_o{}^2 - i_{sys} a_o{}^{n,sys}}{c_1 + c_2 a_s + c_3 a_s{}^2 - i_{sys} a_s{}^{n,sys}} = \frac{i_o a_o{}^{n_o} f^{m_s - n_o}}{i_s a_s{}^{n,s}} \tag{E.10}$$

or

$$\frac{c_1 + c_2 a_o + c_3 a_o{}^2 - i_{sys} a_o{}^{n,sys}}{a_o{}^{n,o}} \times \frac{i_s}{i_o f^{n,s-n,o}} = \frac{c_1 + c_2 a_s + c_3 a_s{}^2 - i_{sys} a_s{}^{n,sys}}{a_s{}^{n,s}} \tag{E.11}$$

Equation (E.11) can be solved for a_S in a number of ways. Since everything on the left hand side is known, the value of a_S that produces an equal right hand side can be found by trial and error.

NOTE An easier method is to use a spreadsheet or similar software package to set the difference between the left and the right hand sides to zero.

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