ABOUT
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ABOUT

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Square-head The History of Wheat in Denmark and this one Importance of wheat varieties for our agriculture.

**(By J.
L . J e n s e n).**

**In the month of July 1874, the recorder of these lines undertook a
Travel to England and Scotland to become familiar with these
Landes Agerbrug. I saw here for the first time with two Scotch country men the now so commonly known Square-head Wheat, viz
eat mr. Samuel D. Shirriff, Saltcoats, Haddingtonshire, and at Mr. Robinson, manager of Castlehill in Pertshire. The wheat looked excellent, both praised it
•°m the most fruitful and beneficial they knew. On my return, I introduced my employee Mr. Chr. P. Jacobsen to offer Danish Farmers
®t Batch of this wheat variety for testing. We then issued one in Fjrening Circular, dated 9 . September 1874, to c. 1900 of the country's largest Farm. Of
this writing, which is probably still in the possession of some Land-men, the following must be stated, which shows, among other things, that
The main advantages of wheat were immediately pointed out. "On one jkjse in Scotland in deviant summer had co-signed JL Jensen
Opportunity to get to know one of the farmers there
jjyere Wheat variety that seems to deserve attention from Danish Jor 7 degrees. This wheat variety's name is Square-head, derived from The square
shape of the axis. It is especially praised for its stiffness** in **the road, so »'.it is not inclined to give Lejesæd, Haardförbed») towards
the father's influence and above all for a** significant **fertility,
,d«t one insured, of a dividend of 20 Tdr. per Td. Country (naturally
•
J
?under favorable conditions) was by no means rare. . .
.
°rmene that this wheat variety deserves a regular trial
a« ascertained whether the mentioned excellent properties, which in tune with the extraordinary power of Straaet and Aksetl8 eog fJ *
Hd#e«nde, will also keep in touch with o. - then have v. secured us a bigger one Kvan'um from the Farmers in question and thereby offer »amme etc LL)er
received as a result Orders ra n08® .
r.andmänd of between 200 and 300 Tdr.,** which **were dispatched through
f0ar^ r°k°ntoret which since through they now retired
ar ftrJ' jyj**
tn 0 e **Distribution of Wheat Varieties. The wheat was exclusively of Mn** S h i
his ^ AvR and until a few years ago, when Mr. S h **Jfil ,PorP»gtning,**
ff **frat councils** . r r .
**at
we got here the Square - head Wheat alarm as 6' as good as all the Square
head
believe therefore that it is fairly certain that it is ea 8nm sheet,
^
Wheat that is now available D**

^ ^nder ©ngelik-akotuk Climate.

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**originates from Mr. Shirriff's Breeding The introduction of square-head wheat into Denmark soon proved to be a decided success, which in its kind
probably has no parallel in our agricultural history. In each of the following years the Field Seed Office distributed quite considerable quantities of
square-head wheat here in Lander. These deliveries were, as is easily understood, in the first years mainly of Scottish
breeding, in so far as grain of good quality could be obtained from it, and in so far as Scotland's poor
harvest did not make timely delivery impossible. But gradually it became clear that here at home on many farms, through rational breeding, we see
ourselves able to produce square-head wheat, for whose
unmixedness and goodness in the whole you can obtain greater security than is normally possible to
achieve in Scotland, imports from that country have almost ceased. In addition, square-head wheat,
which is grown for several years in Denmark, can reasonably be assumed to win in terms of winter
security. The last somewhat larger distribution in this country of Scottish Square - head through the Field Seed Office took place in 1886, when 39,460
Pd. were deposed; last year only 1600 Pd were distributed.**

The same trend has been observed in sales abroad, which in recent years have almost exclusively stuck to square-head wheat of Danish breeding. In this way, this year we set aside Pd 357,060 abroad. Danish Square-head, but nothing of Scottish breeding. The distribution of square-head wheat, which the field

seed office has provided in the past 16 seasons in this country, has always had importance as a seed

grain, not only for further distribution as a whole, but also for the individual farm. We conclude this from the fact that even larger farms have as a rule limited themselves to an order of 2 to 3 Tdr. From these

starting points, the spread has continued from farm to farm.

There are no doubt many who have imagined that the part* the Field Seed Office has had in the

introduction of Square-head Wheat in this country, as far as the deliveries of Stamkom are concerned, must have been very profitable for the Office, but according to what has recently is noted about the out parceling in small quantities, it will already be understood that this is not the case. It might be of some interest in this historical overview to state that the Field Seed Office's average profit on square-head

wheat in the 16 years has only been approx. DKK 400 annually, which is only very little in relation to the scope of the case and the forces that have been set in motion on this occasion. As far as the field seed office is concerned, the introduction of square-head wheat here 1 The country has therefore almost

exclusively been a matter of agricultural economic interest* In relation to other countries, the situation is slightly different, as the delivered quantities have partly been considerably larger, and partly have been set aside in large total orders.

During the cooperation that the field seed office has given to the spread of square-head

wheat, it has of course been in our power, partly to provide all obtainable security for pure and true-to

type goods, as far as possible by examining the wheat in the field, in roang'lender Fall through our

knowledge of the breeder and by sending ** larger cross-section samples of ears of corn; On the one

hand, we have endeavored to clarify the value of this wheat variety in relation to other cultivated wheat varieties by way of comparative research. This last question is, as we will deal with in more detail later, more comprehensive and detailed in the Royal Decree. Dansk' Landhusholdningsselskab's Wheat

Committee of 1882. For information

concerning this question we issued in 1877, that is, the third year after

The Introduction of Square-head Wheat, a Letter of Inquiry to Wheat Growers in Denmark and in Germany. We thereby collected quite a considerable amount of material for information on Square-head wheat's performance and winter hardiness in comparison with other wheat varieties, and on these questions

grouped together Information concerning the sowing, the soil and the weather. For the sake of the collaboration, the entire material was given in numerical form, as far as the nature of the subjects permitted. The results were announced in

Landmands-Blade for the said year Pages 433-43. The outcome of this

Examination answered well to the many scattered Notices that lasted

came to us through the Business Correspondence and to our own.

Observations in the field: Square-head wheat ended up giving a significant

greater average yield for the said year, and its winter safety

stood only insignificantly behind the roofs of the other wheat varieties* as one Group, as 85 pCt. of the voters found Square-head Hveden satisfactory in this point against 94 percent who thought the same for the Regarding other varieties of wheat. Supporting us to this ^ater g

to what we knew in other ways about the performance of the wheat varieties, stated we the following Judgment, which has not subsequently been overruled. »

be entitled to believe that this Hyedevar.etetJSq.

hd.) is unsurpassed °g mftask Wheat variety on good, drained and cult We therefore worked with Wheat fields.-
c 5 PnrlhAH further

full conviction to work towards the goal we wanted to reach: bquare common "

neau Spread in the country. In 1879 collected v. again et ^ 1 concerning Square - head The wheat, R* at Square-head

Landmands-Blade for the said year, (p. > ft{ the whole country
Material
d e lle i ' * ^

The wheat now took up quite a bit more Dr Td- Wheat area, and that the average yield was approx. 2 Tdr. larger per la.

si Square-head than of the other wheat varieties. they for

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In these fold comparisons with the reporting parties

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*The largest part is based on an o J . e

Farmers' Page; and such a discretion will have to be 0m

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“ ^ st^ å n L HveTorter Do we

K"uare-head The wheat its full right, because dat » Wheat

variety, . . de. in fold«.

laughs what it promises on the field R S real weight and measure, 1me soon to Numbers that are definite & a 0 * ^ | j

U8re.head Wheat-these numbers give an even stronger dJfced wheat varieties,

s demonstrated superiority over those of the wheat variety

and

From the information provided, it is easily explained that^ the 8enere, ^

»spiritually won bigger and bigger UV head Hveden. Not

"hg in 1881, came a bad trial year for Sq " about Eighth-sounding Areas, according to

the Statistics that . had to plough8 on the ground

The ninth part of the country's wheat year wheat that remained standing,

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ÿnter's destructive influence, and it "knows",

T ilf a ld . .1. fo r Square-head The wheat was. nogeD

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essential Degree customer

^ "their favor that this unfortunate spread therefore progressed their confidence in the new variety of wheat, and propagation hayde

as far as can be seen without any S^ use had given "

one, that in a number or.er.er, of and years one in md- mangto.a.ge , I' 5 Fold more „an in- in a number of years « L A<w than them. early®7 slippedUwheat

sheet and saw it with

that one knows to oroploj« a misiyKK®

Spring seed, especially barley, could do a fair amount on a particular
good crop, so that the loss from this re-sowing, distributed over the normal wheat
years, would be comparatively small, compared to the advantages that the square
head wheat brought in rows of years. Moreover, people remembered
on the fact that no variety of wheat completely resists the pressure that strings or
Unlucky winters, especially with snow eggs on unfrozen ground with subsequent
prolonged frost, or alternating frost and sunshine towards spring,
exerts on all winter seed.
In addition, it was still fresh in my mind that the Wheatfields
here The country in 1870 suffered to about the same extent from the winter as in 1881, so that, as far as the wheat's winter security was concerned, they were no better off with most of the then used, English wheat varieties than later with
Square-head wheat, while this had a great advantage in its superior performance
under normal conditions.
However, the unfortunate wheat year of 1881 caused Røre to appear
and Movement in the wheat question, especially also caused by the fact that
some of the larger mills in this country made strong complaints that
The square-head wheat gave flour with no baking ability, and that the flour of
this land was difficult to sell at good prices. Similar complaints
The poor quality of the English wheat varieties also appeared in the unfortunate
*
wheat year of 1870. The firm Puggaard & Hage Nakskov complains in a letter to Ugeskr. f. Farmers (2 Vols
1870 p. 181— 82) strongly over the quality of Hallets wheat and states that their business friends in Scotland agreed with them in "wishing ondtoveralledis sefru g t b a r e 44 e n g e l s k e l l v e d e 's o r t e r h v i s

”
,
real l ndholdi A normality is bad 44
It goes without saying that the Mills' Opposition against Square-head
The wheat, not without further ado could be rejected, especially since foreign, in particular German millers made the same complaints. On the Farmers did
these complaints, however, make no strong impression; for experience had shown, that there was nothing in the Way to sell the Square-head Wheat to good prices compared to the regular listing.
The apprehensions that some farmers had about denn®
Wheat variety, were mainly based on its possible unsatisfactory
Hardiness under our climatic conditions. The consequence of the raised Discussion became that it Danish Landhusholdningsselskab set up a committee for
The investigation of the case, which committee was joined on behalf of the mills d'Mr. Møllere A. Weis (Aarhus), A. Bay (Nakskov), Th. Rubow (Kjoben harbour). This collective committee constituted itself at a meeting in Copenhagen
d. 11 March 1882, when Etatsraad Tesdorpf was elected chairman,
Candidate of Agriculture Chr. Sonne was adopted as leader of the practical for' search. Docent Emil Gottlieb was attached to the Experiments as a chemist. The Wheat Committee set itself two tasks: 1) to invent the Wheat®'
varieties that, with the greatest possible performance, combine the best possible quality®* and hardiness and 2) to shed light on the ability of the growing conditions to promote® those soft qualities.
As far as the last task is concerned, the influence of the soil, the amount of seed and the time of sowing was tried, by corresponding
Field trials. The result was that the quality of the wheat according to that
expert practical assessment is only slightly affected by di®80
Factors in Relation to the Dominant Influence as those of the previous

different wheat varieties bound Varietal peculiarities exerted. W*
it was a clear and given fact that folding also in a living room1*

prominent degree is linked to the variety, eaa the wheat committee recognized after 4 years of testing that the central issue in the wheat question lies in the choice of the wheat variety used for cultivation, and the committee then concentrated its efforts on an in depth comparative test of the wheat varieties that had proved to be the most promising among the large number (approx. 70) who had been included in the Committee's so far carried out Variety trial.

Care would then be taken to ensure that sufficient seed grain of good, pure and true-to-type quality was provided from the finally identified best varieties for comparative cultivation and further breeding for agriculture. The latter goal was sought to be achieved by persuading a "dry number of farms to cultivate a couple of thousand Country with each of the selected varieties for which the seed grain was supplied by the committee. Although this therefore became the predominant and immediate main purpose of the experiments, *aa they did not therefore completely abandon the qualitative cultivation experiments on the importance of the amount of seed, the time of sowing, the choice of ears, the sorting, the time of harvest and the harvester. These investigations were continued on a larger scale, after the variety trials in 1887 were brought to a relative end.

The field seed office has had the honor of collaborating with the wheat committee on various points, partly in the procurement of some of the tested varieties, partly in the cleaning, equalization and distribution of the seed grain.

The historical starting point for the Wheat Committee's work was, as we have seen, Snuare-head wheat with its well-known and recognized advantages and the complaints that were made about the baking ability of its flour and its supposed lack of winter safety. The purpose of the wheat committee can therefore probably also be expressed in this way, that it set out to invent a wheat variety that, with all reasonable considerations, could be recommended as more attractive for cultivation in this country. Square-heud wheat, or failing that, to demonstrate the insufficient justification of the other complaints or to present such experimental material on different varieties of wheat that The farmer, on the other hand, could make his choice with clearer awareness than was previously the case.

The task must be said to have rested in very good circumstances and was furthered with the use of an unusual method - fossilization of the means that best led to the goal. as far as these have hitherto existed for Oflfen the likeness.

k V i begin with the demonstration of the quantitative ,
JJjytte a f S q u a r e - h e a d H v e d e n i S a m m e n l i g n i n g med a n d r e UeV first has a series of tests on this:

1883, 84, 86 and

,

P<u. Rodstensee (Jutland). Ravnholt (Fyen), Gjørsløv 'r. « 8 3 the
Host report for Rodstenseje seems to be missing. the open &0«* material presumably caused by erasing' ^ completed when the report for the autumn of 1883 was
given for having an attempt in the said year at Knnelborg (*alster>). The place

*°*the
l* *ete with Squarlhead from 4 domestic breeding sites, which
Overview will be summarized, two for Foldrig g*ke Varieties: .
Kent and Golden drops, as well as 2 p J ke

»g Sandomir, which is believed to give particularly good flour. The results of the comparison were as follows:

The dividend per Td. Country in Tdr. å 216 Pd. on 3 farms.

j

The species of wheat.	1883.	1884.	1885.	1886.	,	1883-86.
Square-head.....						
17,6 19,1						
K e n t						
.....						
17,i 16,6						

15,8
22,8 20,7
19,4 16,5
17,4
Golden drops ..... Gaffker.....
16,0 13,i
17,3 9,1
20,i 14,8
14,7 12,1
17th 12,i
Sandomir..... 1 1,*
12,i
9,6
14,3 11,7

The square-head wheat has therefore won here every year, and on average with an additional yield over the best variety of approx. 13/4 Td. per Td. Country. This means that Kent and Golden drops in 1883
sown per Td. Land 9 Skpr., but of Square-head Wheat 10 Skp.i
while the sowing of all 3 varieties in the following years still
was 10 Skp. We have therefore deducted 1 Skp. in the fold yield of Square-head for 1883. The two Polish varieties, for which the seed average was good 2 Skp. less, are so far behind in dividends that there this reason cannot become a matter of their cultivation in this country, itself whether the flour had to be of the very best quality.

In addition to these quantitative trials, mango was also carried out others with a larger number of varieties. But some of these had what it Quantitative concerns, mainly only Significance by evoking hints for later Choices among the Varieties. Among these Attempts shall
mentioned Trials in 1883 with 20 varieties at Birkholm, Rosenfeldt and Queen's Garden; Trial in 1885 on 5 farms with 10 varieties; Attempt the same year at the committee's trial area in Lyngby with 33 varieties; Forfeiture same place 1886 with 38 Varieties; Experiment in 1886 on 6 farms with 12 Varieties, some of which were not tried at every location. For the same Class must be considered trials in 1887 with 28 varieties on the committee's trials8' area in Lyngby.
The following experiments, by which the varieties are partly selected*8 according to the hints obtained in the experiments just mentioned, are sufficiently detailed so that the results could be compared, since they either re* hold several farms over several years, many farms in 1 year, or 1 Trial site (Lyngby) with multi-stage Trials on each individual Vari®*et for several years.

About a 3-year experiment, 1884—1886, at Kringalborg and Førsl®* only needs to be stated that Square-head Wheat was No. 1, though only m®£ ws Td. above the second best (here Red prolific). In addition, ® was made spread Experiment with 7 Varieties.
The most significant of the trials carried out was carried out®* 1 1887 on 15 farms with the following 8 wheat varieties, and with the following Outcome.

Average dividend per Td. Land in Tdr, at 216 Pounds
on 15 farms in 1887:

Square-head 22,3 Hereford Hire 19,« Golden drops 19,« Cob wheat 19.*
Molds rede 19,*
Kent 19, o
Mold white 18.7
Light glass. Estonian 18,*

It will be seen that the Square-head Wheat here claimed a strong 0*®f

unit over the competing Varieties, as it gave approx. 2^/4 Tdr. more *°d the most rewarding of these. On a 16th farm, only a few were tried the 8 varieties, and this is therefore not included in the above table, ^tasuden was tried at the same flat Urtoba, Browick red, Chidham white, Red prolific and Gl. Danish brown wheat at 7, 4, 5.1 respectively °g 2 Farms. We compare the Dividend of Square-head with the Dividend each of the first-mentioned 3 Varieties D aa these respectively 7, 4 and 5 Farms.

same 5 Farms — 16.8 4 Farms n
(Square-head 1 Urtoba . Td. Land. n
f Square-head \ Chidham
f Square-head (Browick red
7 Farms average 23.g Tdr. per n »
same 7 Gaarde — 18,8 — 19,» — 24.0 same 4 Farms — 16.8

n
5 Farms

n
n

These varieties, too, were, as you can see, far surpassed
^quare - head The wheat. When Red prolific gave the second highest yield in the tal* mentioned 3-year trial at Kringelborg and Førsløv, must here added as a note that it gave 4Vs Td. less than Square-Jead on the farm hinted at in the present Suite, Christiansæde,
beerland, and since approximately the same ratio appeared in subsequent trials, ***** the advanced Place, which Red prol. intake in the above Trial At Kringelborg and Førsløv, is considered to be of a purely accidental nature.
We now come to 2 Lyngby trials, both of which are breeding trials. .

The one main purpose was to investigate the effect of
Different amount of seed and different sowing time, included 7 varieties i Aari 1885—1887. In addition, several other varieties for which pre ?°|a knn was carried out for 1 or 2 years and which is therefore included
<tanne Compilation. Each of the 7 types of grain has been tested 1 29 Single . search under the same changing conditions and could therefore be used
enne quantitative survey.

Average breeding per Td. Country. Lyngby 1885-87. Light glass. East Prussian*. 3159 pounds

Square-head 3618 Pund Golden drops 2893 — Molds rade 3306 —

Kent 3276 — Red prolific 2869

Molds white 3261 —

the difference between the yield of grain taken from nhge «ore ears, part °n«*ed with regard to grain size, partly sorted seeds* a^

the body size was made as close as male equal. The experiment was carried out
1000 grains for each variety. The grains M bdw ite 6

4 3 inch spacing. This distance corresponds to a Seed

6Ca- 3'/h Skp. per Td. Country. and then Square-head Wheat'. on the ground

"J1 somewhat less extinguishing ability than several a" re. j et 6j el'ghed requires closer sowing to reach its R ^ harde

« see how it In terms of tl 'U db n r e by J *
^ ^ .

attempt. If we put the grain yield of Square-head hg 100, d8,a»ene the following:

Square-head 100
Herefordahire 95
Kent 94
Ly* glass. east pr. 91
Molds white 91

Red prolific 90
GoldeD drops 90
Urtoba 80
Mould* red 79
Gl. brown danish 77

Partly in accordance with the comparative yield tests referred to in
this way, partly with consideration of what was known or assumed about Winter safety of the varieties, finally with the support of an expert judgement about the quality, the Wheat Committee of the autumn of 1887 offered twelve varieties of wheat for further breeding. The orders were submitted to the Field Seed Office, from where the distribution took place. It turned out here, however, that the Farmers only in Few took advantage of this offer, because even though Square-head Hve-den had long since become common in the country, people kept
distinguished to submit Orders on this. Some attention found
Cob wheat and Urtoba, then light glass. East Prussian Wheat; of the rest only a few sacks were distributed; of Chidham even only 10 pounds. This was a new testimony that the Farmers stuck to the Square-head Wheat, and that there was only a scattered desire to try some
of the varieties that had evidence of greater winter security than the Square head Wheat. The wheat committee's inconvenience with the procurement of seed grain therefore contributed only to a small degree to the intended result of getting mof the offered varieties tried in a larger number of breeding farms; but otherwise1 it can probably be rightly said that the position of the farmers in this respect corresponded quite well to those present and later at Bagning®'
trials more specific Trial results, albeit Farmers®
Restraint was somewhat more strongly marked than perhaps desirable. It is about the winter safety of the tested wheat varieties
more difficult to provide certain information from the trials, so long® The test results for 1888 are not available, namely the years 1882-87 in its entirety had no winter dangerous to the wheat, whereas
The winter of 1887-88 thinned out and severely depressed the Wheat. By, however, selecting among the Trials such individual Localities where Vint6' ren explicitly said to have destroyed some Varieties (only 1 such Til' trap from 1883 is available) and by drawing Conclusion6* from the yield figures in this direction, finally by taking into account the condition of the wheat varieties in 1888 on the Field Seed Office's experimental field at Øresundshøj and in the Landbo højskolen's experimental garden, from which two places, after careful Review was written down Grades for the abundance of plants on the beds®* who were partly heavily affected by the winter, thinks Ref. that could® set up the following provisional scale for the winter safety of the 12 Hved® varieties, of which the Wheat Committee in 1887 distributed experimental grains for further breeding* 1) Give. brown danish, 2) Light glass. East Prussian, 3) Cob wheat; these 6f® definitely the most winter-proof; then follows 4) Urtoba, then the row * English wheat varieties: 5) Square-head, 6) Chidham, 7) Herefordshir6' 8) Browick rode; the mutual order between the last 4 is
however, only weakly based; more specifically the following 4 seem to consume de®
^
bottom place 9) Kent, 10) Golden drops, 11) Molds red and Molds white
'
When the Wheat Committee's Report for 1888 and 89 — nav® equal to the first-mentioned year — available, the above will OpatilH®® possible at various points to be corrected, but some greater Ot® ^
ranking, however, there will hardly be a reason for it.
It will be remembered that Square-head Wheat came to us from Skotla® with Testimony for Winter Safety, and this Praise is later repeated® from England. According to what is available so far, this praise must be erkj®®(e. justified under the conditions under which it is given, netnb# Comparison with other English bearing wheat varieties; for ®° you see, it occupies According to the above arrangement it
or at least a very advanced place in this Class. — Win*

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the richness of a wheat variety can, moreover, be fairly certain to be gained by longer cultivation in the new homeland, this is particularly noticeable in the case of square-head wheat. Greater progress in this direction presumably occurs precisely in the unfavorable winters, as a number of weak plants perish, and the stronger ones mostly survive the ordeal.

wheat question.

They investigated the quality of wheat varieties. The strong cries that both from Denmark and Germany on the millers' side sounded over the Npiare-head wheat seem to have been completely silenced in recent years. . This is obviously connected to the fact that a new milling system has been switched to, the roller system, whereby the strong heating of the flour caused by the previous milling head is avoided. Due to the strong heating, the gluten of the wheat can be damaged. The baking ability of the flour is destroyed. At the first major conference meeting in Copenhagen, 14 December 1881, strong reference was made to * * this relationship, especially from the Ref.'s side (see Ugeskr. f. Landmænd 1881, ' P* 304 and Landmands-Blade 1881 p. 854—55). The fact that a number of foreign types of wood, which were ground on the same mills, did not give rise to a break, must be largely explained by the fact that, as a rule, they had been subjected to a longer period of drying and storage before they reached er*il, by which the resistance of the grinders used at the time and thus 1 * * * the heating was reduced. In addition, flour, whether it is aerated in 0g with the grain itself, or is left for a time after hormaline, undergoes such internal changes that the baking ability gains R only because of this; this, too, must set the domestic wheat agunsh- ^6er in the judgment of the millers and bakers; because, as a rule, the imported 0lJed yielded stored flour, but the domestic, at least not until autumn, yielded flour. The threshing mills played a role in this, as the Farmer their Himir.

It still deserves to be strongly emphasized that the use, especially the dry use, of blast pickling to a very significant degree weakens the wheat's winter safety and thereby the fold yield, but that this weakening is compensated by the hot water method, which also, in relation to the breeding according to the blast method, has manifested itself in a very familiar quality improvement of the harvested wheat, judged by the millers Points of view. This was established by Ref's experiments in 1887-88. Even in mild winters, an increase in the fold yield of wheat in this way must be considered highly probable, because a great deal of additional yield was obtained, even to a considerable degree, both with barley and oats, which had not suffered from night frost.

; Time to thresh and sell his Wheat koi cre® Help saw himself in otand tu a* ®

The pickling question thus intervenes deeply in all the main points of the

) ~ ,,
* Warehouses T'® After-drying „
will be far worse than with successive threshing

r
lJest, and in the case of accumulation in Kjøbroændeoes or Møllerne*

»

ilfLieVering * The course of winter in the days of threshing, for ' Latterly the wheat was dried in the straw and in the relatively thin spread J ^fdmen's lofts, with which also the storage of the

D

v.flVet- As an unfavorable moment in the judgment on square-head wheat 1 et uiaa another circumstance is mentioned , who has been honored for Mr. Chr. Sonne, namely that the Square-head Wheat, P»» <J“nd thick compressed Ears, require a beingl.g stronger Vqj g

* ‘

Y? n than any other known variety of wheat, and until recent years the fcnds have sinned greatly against this claim.

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The examination of the quality of the wheat, apart from the practical assessment of the samples by expert Møllerskjøn, as indicated above, has been entrusted to Docent Emil Gottlieb. Those of Mr. The investigations carried out by Gott-lieb on this occasion are very extensive and in particular the chemical analyzes represent a work sum of considerable dimensions, as over 300 complete chemical analyzes of wheat, wheat flour, gluten and bran have been carried out, in addition to chemical investigations of a smaller scale. The most essential purpose of these extensive investigations was to determine the chemical composition of the various wheat varieties and products, showing the influence of the place of growth, the grain, the amount of seed and the time of sowing on the same, and to ascertain whether the wheat's nitrogen content is in a certain relation to its baking ability.

The nitrogen issue thus became the most important point in this investigation. The main results were that the nitrogen content of wheat is determined to some extent by the wheat varieties, almost in the direction that the richest wheat varieties with the same growing conditions show on average the lowest nitrogen content — square-head wheat thus had the lowest average content of

this substance — but that the nitrogen richness primarily determined by the Fertility of the place of growth and increases or decreases with this. Square-head wheat's nitrogen content on a good fertilizing soil can thus be, and is, as a rule, considerably greater than in otherwise more nitrogen-rich varieties, when these are grown on soil of inferior culture. As a result of the overwhelming influence of the soil in this direction, the nitrogen content of the grain has no significant impact on the quality of the harvest in this respect. The seeding quantity* was reduced only to a weak influence, on the other hand, silt-sown wheat gave a higher nitrogen content than that previously sown.

The provision of such comprehensive wheat analyzes depends on together with the assumption that the millers in particular previously proceeded from, they still make it possible that the flour's good baking quality, in addition to the nature of its gluten, depended to a very significant extent on whether the wheat was rich in nitrogen. To have this theory examined, °# to obtain clarity about how the farmer in his practical wheat* cultivation could possibly be put in a position to take this into account, was all*#11 a task of great importance.

But this theory was not confirmed in the Baking Test®00 compared to the analyses. Before this is announced, a few pieces of information must be provided about how these experiments were initiated*; Some of the preliminary baking experiments were carried out by Associate Professor Gottlieb in the Research Laboratory. The large row temporarily closing Forsø# with approx. 200 baking tests, which are to be discussed here, were carried out by Master Baker Cand. poly. CF Lichtenberg under Docent Gottl«6^ Supervision and Management. They were carried out with the wheat bred in 1887, namely of the varieties that the committee offered in the same year for similar cultivation trials and further breeding. The flour for this was ground P0* a small trial mill with a rolling system was acquired by the Committee. There was character partly for the dough, partly for the bread. The bread evaluation was partly based on the external appearance of the bread, so that the light, straight ^ ^ bread was ranked highest, partly according to the internal appearance of the bread, where the abs° ^ white bread was ranked in the first class, partly according to the porosity, as it peppered was considered the best. Then Numerical grades: excellent —ÿ 1, bright and good =— 2, good 3, dark or less good — 4. Lower grades were not included

fattening ti] to distribute. At the assessment, the judges were not knowledgeable 0nL from which wheat the dough and bread originated. Control experiments showed, that work was done with good security on this basis.

It was stated above that the wheat's nitrogen content first and

mainly depends on the place of growth; on this basis is therefore notified

b®dst The relationship between the baking ability and that of the wheat or whatever parallel to this, the nitrogen content of wheat flour.

For 10 farms, the flour's baking character and nitrogen endurance were as follows:

Baking grade Nitrogen pCt.
Baking grade Nitrogen pCt.
G*ard No. 1 — 2 3. —
4
* — 5
The The Lee

1,7 The
1,67 1,67 1»77

1,76 1»74
Farm No. 6 7 8 -

-

-

9 10
The 2,i 2,e 2,6 2,7
1 »81 2,18 1,78 1,60 Onion

Although, as you can see, these numbers are not terribly regular

^^soige, then it cannot be denied that they are far from giving it

The above-mentioned Theory Medhold, rather point in the direction that the nitrogen ^ttiest wheat makes the best bread. Incidentally, this agrees with one Probably a common assumption in the countryside: that rye comes from the sand words make the most pleasant and beautiful Bread.
Now, as we saw, the Square-head Wheat averagely stands

[Rvest in nitrogen content, it must pass the new starting point already [ormodes that its flour must have a high baking ability. Just like that b,ev also the outcome. The bread from Square-head got 8 times excellent, 12 VaD£e very good, 2 Times less good, and Square-head Wheat kora

Rt takes the second highest place among the examined varieties. First ^lad8 got Herefordshire with 9 excellent, 7 very good, 2 less good;

80111 you will see, they are roughly equal. Next follows, after Mr. Gott ,ebs pPgjerselse, Molds white, Light glass East Prussian and Cob wheat; 8aa distinctly lower Golden drops, Molds red and Kent.
However, it must be added that Mr. Gottlieb takes a certain reservation 0v®r for the general validity of these results.

The square-head wheat has therefore gone out with glory and victory ®one long-lasting, careful and profound test, our one

3a*ttet compete with the best and most fertile varieties of wheat, man 1la °p ask. Selvfø.gelie this is a .tor Joy and TO fa M ®

f 08> who have Introduced and spread it in this country, whatever

!ke happened in the blind, but, as paavi.t, with the use of investigative

Well, it can be assumed that the in Relation * *
^ Varieties have fared somewhat less well , **1888,** about which, as

detailed report not yet available,
*n
not in any significant degree affect its S tdl !®"®®mong the · n g

and ® ^
like that

best and most advantageous variety of wheat that has hitherto been 1 hear] Country At

[t] j

If you ask about
which increase in income S^"*re ' h“ j ,

has bought our agriculture, then it must first be noted that

ar, a"8* ® 80m fairly certainly ascertained that a a

perhaps 4 - 5 years, is grown on approx. 90 percent of I^a After **all hv.H** that seduces in the preceding **sam**
{g Wheat g

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Machine Translated by Google

Trials and Investigations, one cannot reasonably assume that thereby
provided additional yield from the wheat cultivation to less than a couple of Tdr.
per Td. Country average, a number that must soon be considered to be
too low. But if we go from here, the additional yield will correspond to approx. 225,000 Tdr. Wheat or approx. DKK 3 million annual.
The official harvest statistics will also be able to provide some information
Information about this progress. But there are two things to note here. The
harvest statistics are based solely on reports that are separate
utter a judgment, and there is probably a lot of reason for these
Although on average not up to full height with the real one

Harvest. Next, there were no Harvest statistics before 1875. However, since the Square
head Wheat cannot have raised in the first 3 Hastaar

The average breeding quite a lot, we would start from these as a basis
for a comparison. We include as a control the rye harvest, which said
pretty much shares Will with the Wheat. You then have the following number.

Average breeding of wheat and rye in Tdr. per Td. Country.

,

[Wheat] Rug

1875-77 10.6 1878-88 Il.o 1884-88 12.8

B,a 9,o 8,6

It can therefore be seen that the period 1884-88 includes a] weak Wheat year, however, the average yield is 2.3 Tdr over the period 1875-^77, which does not include any disturbing winter. The rye harvest was in both* Periods even.
This study also fully confirms the great economic importance of square head **wheat for the country.**