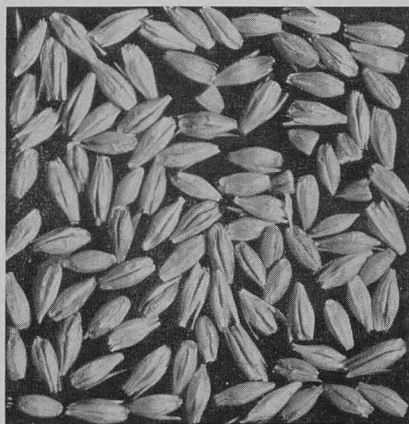
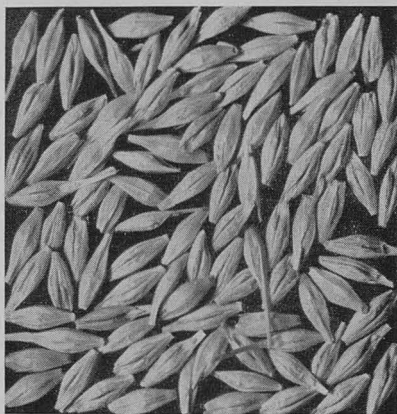


# More Profits from Malting Barley

This properly  
threshed lot weighed  
45 pounds per bushel  
and was priced 18  
cents over feed bar-  
ley of the same test  
weight.



This closely  
threshed, skinned lot  
weighed 46.5 pounds  
per bushel and was  
priced 17 cents less  
than the lot above.

By W. W. BROOKINS

UNIVERSITY OF MINNESOTA



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**M**ANY progressive farmers are raising barley of good malting quality. In seasons when the quality of the barley is high, it is more profitable to feed lower-priced grain on the farm and sell the barley for malting. High-grade malting barley frequently sells at a premium of 15 to 20 cents over feed barley of the same test weight.

### **WHERE CAN MALTING BARLEY BE RAISED?**

Malting barley has been produced in all parts of the state. The center of production shifts from year to year, depending upon the season, disease epidemics, storm damage, and soil conditions. Southeastern counties seem to be most favorably situated, probably because of better climatic conditions. In 1937 the center of production extended westward among southwestern counties, and in 1938 moved northwest because of favorable rainfall distribution there. Severe storm damage farther south completely wiped out many choice fields.

### **WEIGHT PER BUSHEL IMPORTANT**

Maltsters prefer barley that is plump, weighing 43 pounds or more per bushel. Grain that weighs only 41 or 42 pounds, because of long beards, is often purchased at malting prices, provided it meets malting requirements in other respects. In some cases, weight per bushel may be increased two or three pounds by removing undersized or shriveled kernels. This may be done in threshing by increasing the wind blast on the shaker, or with the ordinary fanning mill using a special malt-sizing screen with perforations 0.076 inch x 0.75 inch. The screenings may be ground and fed on the farm.

### **UNDERSIZED KERNELS OF LITTLE CASH VALUE**

Barleys testing 43 to 45 pounds may contain up to 25 per cent of undersized kernels. Undersized kernels, those which pass through a malt-sizing screen, are removed before the barley is malted and represent a partial loss to the maltster. In the 1937 crop, grain was dis-

counted one cent per bushel for every per cent of undersize over 11. Sizing may be done on the farm, or at the local elevator, if properly equipped.

Undersize is a lack of plumpness. Plumpness may be improved by using suitable fertilizers, except when seasonal conditions are not favorable. Soils too high in nitrogen increase dangers of lodging and shriveling of the grain. In some cases this condition may be corrected by phosphate and potash applications, but should be done only upon the advice of a competent soils man. Good cultural conditions, including a good seedbed, well-worked soil, and control of weeds, are equally important. Early planting gives the crop a better chance against weeds and allows it to develop during that part of the season usually best suited to barley.

### **MELLOW BARLEY IS STARCHY**

Seasonal conditions largely determine mellowness. A season that produces soft starchy wheat usually produces mellow or starchy barley. Cutting barley while still green results in a lower yield of malt extract; the greatest extract content is obtained only in well-matured grain. Cutting too early lowers kernel and bushel weight and increases the amount of clean-out or waste grain. A late-maturing variety mixed in an earlier variety lowers the market value of the crop as malting barley if the crop is cut when the earlier variety is ripe. Low spots that are still green at harvest may be cut with the rest of the crop, but the green bundles should be shocked separately and kept separate when threshed. Differences in mellowness between malting varieties are relatively small. Trebi is strictly a feed barley, noted for its hard flinty grain. Glabron is not considered a suitable malting type; it is less dependable than malting varieties in producing mellow quality.

### **WHITE-KERNEL VARIETIES PREFERRED**

The market favors a white-kernel barley for choice malt. Velvet and Wisconsin 38 have

white kernels<sup>1</sup> unless cut green. Oderbrucker produces similar grain but yields from 6 to 10 bushels less per acre. Manchuria may contain blue kernels, varying from small amounts up to 80 or 90 per cent. Glabron usually contains 25 per cent blue. Trebi is a blue-kernel barley, readily identified by its large size and color. Minsturdi is not used for malting. Peatland is a white-kernel, rough-awned variety, which possesses a harsh appearance under some conditions. Tests for Peatland show it to have satisfactory malting quality, and while it appears to be well adapted to northeastern Minnesota, the variety has been little used on a commercial basis.

### **SKINNING IS SERIOUS**

Grain buyers refer to barley as "skinned" when the hull is entirely or partly removed or is badly frayed from too close threshing. Skinned and broken kernels are of little or no value for malting. Too close threshing in an effort to improve bushel weight is a common fault. Seventy per cent of farm samples inspected during the winter of 1937-38 contained up to 20 per cent of skinned kernels. In the 1938 crop, buyers report, 70 per cent of the mellow barley is badly skinned. Dry, brittle barley is more subject to injury than grain that is damp and tough when threshed. A high cylinder speed, too many concaves, and other faulty separator adjustments are common causes of the injury. Operators unfamiliar with adjustments on new types of harvesting and threshing equipment should give this problem consideration.

### **DISEASE, MOLD, HEAT, SPROUT, AND GROUND DAMAGE**

Very small amounts of disease, mold, heat, sprout, and ground damage may make barley unsuited for malting. The danger of widespread field infection from such diseases as scab and head blight may be reduced by proper cultural practice. The fungus that causes scab lives over winter and thrives on the old cornstalks

<sup>1</sup> Reference here is to the aleurone layer of cells immediately beneath the skin. The color, when present, is contained in these cells and because of the transparent nature of the skin is visible to the eye when the hull is removed.

and stubble in the field. Infection of the barley takes place at heading time. Clean plowing of cornstalks and stubble when barley follows corn in the rotation helps to reduce scab.

The seed may be treated with New Improved Ceresan to control losses from seedling blight and will often insure a better stand. The same treatment controls covered smut and barley stripe. If some bundles have lain on the ground for a time and are injured by mold, sprouting, and ground damage, they should be separated from the rest of the crop. Heat damage results from binning grain with too high moisture content. Proper curing in the shock or stack avoids additional costs of handling grain in the bin and prevents losses from heat damage.

## **TWO-ROW AND TREBI MIXTURES ARE DISCOUNTED**

Mixtures of two-row in six-row barleys and of Trebi with good malting varieties are more common in varieties that have been on the farm many years. Seventy per cent of so-called "old-style," rough-awned varieties, which have been grown on the farm upward of 30 years, now contain enough of these types to place them in feed grades.

Reasonable purity and freedom from unsuitable types can be maintained at small cost by systematic use of the seed plot. A five-acre plot, sown with registered seed, will supply the average grower with sufficient seed of high purity for the following year. In the next four years, mixtures will gradually accumulate again. Where other varieties and types are grown in the same community, they eventually show up in pure stocks, unless careful roguing is practiced. If the seed plot is repeated once every four or five years, it will automatically control mixtures. In threshing the seed plot, a reasonable amount of grain should be allowed to run through the separator before saving grain for seed. This permits clearing the machine largely of other grains or seeds lodged there from previous threshings.

## USE PURE SEEDS

As a rule, barley growers change their seed once every four years, but about three out of four purchase their seed from a neighbor. Owing to this practice, most of the seed in use has been on farms for a long time. Old varieties have been on farms 30 years or more, and the newer varieties ever since they were first introduced into the community. In this way varieties soon lose their identity and accumulate mixtures from every community in which they have been grown.

Growers of registered grains are the safest source for pure seeds of the variety desired. Names of growers are furnished by the Minnesota Crop Improvement Association, University Farm, St. Paul, on request. The widespread regular use of pure seed in a community or county and the general adoption of the seed-plot plan will aid in standardizing quality.

## OATS AFFECT QUALITY

More than 25 per cent of barley samples inspected for farmers contain oats and other grains in sufficient amounts to affect salability. Special cleaning equipment, which farmers cannot afford to purchase, is required to remove the oats. The use of seed plot and care in saving seeds is the easiest way to prevent mixtures.

## DEVELOP THE HOME MARKET

The reputation of country shipping points for dependability and quality creates a demand for their barley on the terminal market. Country elevator operators should encourage farmers to produce a uniform, high-quality product and to have their barley inspected regularly for those factors which can be controlled. The inspection record will also serve as a guide for those who buy farm-run varieties for seed. If low-quality grain goes to the market, lower prices result and the entire community suffers.

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