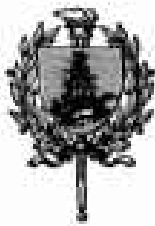


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MARQUIS WHEAT.

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INTRODUCTION.

Marquis wheat has aroused much interest in the United States during the past three or four years. Farmers and also millers, bunkers, and real-estate dealers have had their attention attracted to it. This interest was first stimulated by items in the papers stating that Marquis wheat had taken the first prize for hard spring wheat at certain expositions. Statements were published also of high yields made by this variety in the Provinces of Manitoba and Saskatchewan in Canada.

WHAT IS MARQUIS WHEAT?

The variety called Marquis is a hybrid wheat produced by Dr. A. P. Saunders and Dr. C. E. Saunders, cerealists of the Central Experimental Farm at Ottawa, Canada.

HISTORY.

Marquis wheat is one of the descendants of a cross made in or about 1892. The female parent was a wheat from India, called Hard Red Calcutta. The male parent was the widely grown Red Fife wheat of Canada.

The different forms resulting from this cross were separated in 1903 at Ottawa, and each was grown by itself in 1904. One selection having desirable plant characters was named Marquis at some time between 1905 and 1907.

The good milling qualities of this variety became apparent by the end of 1906, and it was sent out to Manitoba for testing in 1907. Wheat rust was very bad in 1907 in the wheat-growing Prairie Provinces. The earliness of this variety enabled it partly to escape the rust. It soon became a leading variety in Manitoba and Saskatchewan.

The yields of Marquis wheat at agricultural experiment stations in these Provinces were 13.5 to 38 per cent higher than the yields of Red Fife during the eight years, 1907 to 1914, inclusive.

DESCRIPTION.

The Marquis is a beardless spring wheat, with hairless, white (greenish white) chaff or glumes, and a hard red kernel. In appearance it closely resembles the Fife wheats of our northern Great Plains States and is therefore included in the Fife group (fig. 1).

The plants are of only medium height, ranging from 28 to 48 inches, according to season. They generally are 2 to 4 inches shorter than those of the Glyndon or Power varieties. The heads are short, varying from $2\frac{1}{2}$ to 4 inches, and averaging one-half to 1 inch shorter than other varieties of Fife wheat. The chaff or glumes also are short and broad. Two or three short awns or beards usually are found at the tip of the head, as in other beardless wheats. The short straw is stiff and stands up well. The seed does not shatter.

The kernels of other Fife wheats are short and broad, but those of the Marquis are even more so. They average about one-twentieth of an inch shorter than those of Fife and Bluestem wheats (fig. 2). The crease is deep and broad.

The Marquis is an early variety, ripening from 98 to 135 days after sowing, varying with the season and locality. The average length of its growing period in the northern Great Plains is about 115 days. This makes it three or four days earlier than most of the other Fife varieties. Because of its earliness it escapes to some extent the drought of dry years, the rust and fall rains of wet seasons, and also the early fall frosts. These are the characteristics which have made it especially valuable in the Prairie Provinces of

Canada. The growing season lengthens as one passes southward into the United States, and earliness is no longer so great an advantage.



FIG. 1.—Heads and kernels of three varieties of hard spring wheat, natural size: 1, Marquis; 2, Glyndon; 3, Haynes.

MARQUIS WHEAT IN THE UNITED STATES.

A considerable quantity of seed was brought into this country from Canada for sowing in 1913. Much larger quantities were imported for sowing in 1914. This importation, with the seed home grown in 1913, was sufficient to sow about half a million acres in

1914. The resulting crop of some 7,000,000 bushels gave a large supply of seed in this country, and very little has been imported since. Most of the original seed was sold in Minnesota, North Dakota, Montana, and Washington. Smaller quantities have been sold as far south as Iowa and Nebraska.

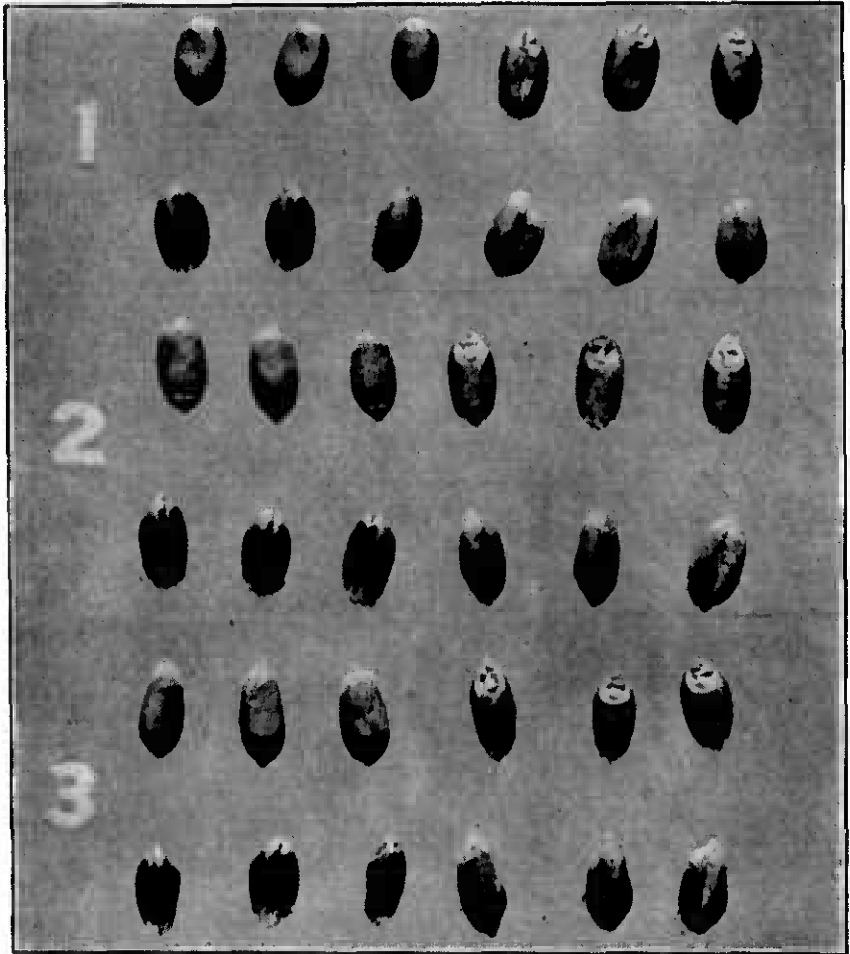


FIG. 2.—Kernels of three varieties of hard spring common wheat, twice natural size: 1, Marquis; 2, Glyndon; 3, Haynes.

As soon as Marquis wheat attracted attention, the United States Department of Agriculture and various State agricultural experiment stations began to test it for yielding power and milling value.

The experiments have covered thirteen States,¹ from Iowa and Minnesota on the east to Oregon and California on the west. In this

¹ The courtesy of the directors and other officers of the State agricultural experiment stations of Iowa, Minnesota, Nebraska, North Dakota, and California, in furnishing experimental data on Marquis wheat, is hereby gratefully acknowledged.

long stretch of territory the adaptation and value of Marquis wheat vary with the local conditions.

This portion of the United States may be separated into four divisions, according to these prevailing conditions. These divisions may be called (1) the northern Prairie or subhumid section, (2) the northern Great Plains or semiarid section, (3) the western Basin and Coast or arid areas, and (4) the irrigated districts of the northern Rocky Mountain region and Great Basin area. The Great Basin area in the third division may be separated into the Great Basin proper, the Snake River Basin, the Harney Valley, and the Columbia Basin.

VALUE IN THE SUBHUMID SECTION.

The subhumid section covers only the northern Prairie States lying west of the Mississippi River. It includes Iowa, Minnesota, and the subhumid eastern parts of Nebraska and the two Dakotas. Marquis wheat has been grown to a considerable extent in this subhumid part of the upper Mississippi Valley.

The principal spring wheats are varieties of the Fife, Bluestem, and Preston groups. Marquis wheat slightly outyields all varieties of these groups of spring wheat in this section. Where winter wheat can be grown, however, it outyields any spring wheat.

The conclusions from these facts may be stated as follows: Grow winter wheat wherever and whenever you can in this section. When spring wheat is to be grown, the Marquis is a good variety. Do not hastily discard well-known varieties of Fife, Bluestem, and Preston wheats now grown. When Marquis is tried, compare it carefully with the other spring wheats. Hold fast to that which is best.

VALUE IN THE SEMIARID SECTION.

The semiarid section covers most of the northern half of the Great Plains area. It includes, therefore, most of Nebraska and the Dakotas, northeastern Colorado, eastern Wyoming, and the eastern half of Montana.

Two classes of spring wheat, common and durum, are grown in these States. All the leading varieties of spring common wheat belong to the Fife, Bluestem, and Preston groups. Marquis has proved to be as good a yielder as any of the varieties in these groups in this section. Almost all of the durum wheat is of two varieties, Kubanka and Arnautka. Throughout this section durum wheats outyield spring common wheats, including Marquis.

Winter wheat, again, is decidedly better than any spring wheat in much of this section. In central South Dakota and central and western North Dakota, however, winter wheat can not be grown. All the winter wheat grown in this section belongs to the Crimean

group of hard red winter wheat. The leading varieties are Turkey, Kharkof, Crimean, and Beloglina. Across the line in the Canadian Province of Alberta, Turkey is called Alberta Red.

The following conclusions are based on the facts given above:

(1) Winter varieties are best where they can be grown in the northern section of the Great Plains area.

(2) Durum wheats are better than any spring common wheats in this section.

(3) Marquis is better than any other variety of the spring common wheats in some parts and about as good as any in all parts of this section. Where spring wheat is grown and durum wheat is not used, the Marquis is a safe variety to grow.

It is especially well adapted to central South Dakota. Here drought and rust often reduce the yields of later maturing varieties. Preston ("Velvet Chaff"), a bearded wheat, is now the leading variety in that district. Marquis is beardless and a better yielder, as well as a better milling wheat.

Rust and drought are not so frequent in North Dakota and Montana. The earliness of Marquis gives it an advantage when they do occur. The later maturing Fife and Bluestem varieties may give as high average yields in a series of years.

VALUE IN THE ARID SECTIONS.

The dry lands of the States west of the Rocky Mountains are included in the arid sections. The different sections represented are known as the Great Basin, the Snake River Basin, the Harney Valley, the Columbia Basin, and the Sacramento Valley.

Marquis wheat has not been widely introduced in these sections. Several carloads have been sold for seed in the Columbia Basin counties of Washington.

At most places in these States good varieties of spring wheat outyield the Marquis. Palouse Bluestem, Early Baart, and sometimes even Little Club have outyielded the Marquis variety. It also is not as good as several of the new wheats which have been bred at these western stations but are not yet grown on the farms. Marquis is not recommended for any district west of the Rocky Mountains.

The hard red winter wheats of the Crimean group are now widely grown in the wheat districts of Utah, Idaho, Oregon, and Washington. Wherever these wheats are grown they outyield any variety of spring wheat.

VALUE UNDER IRRIGATION.

Irrigated farming is confined to the valleys more or less adjacent to the mountains of the Western States. Marquis wheat has not been grown to any extent under irrigation.

In western South Dakota and in Montana, Marquis has given good results, according to the limited information at hand.

In Idaho and Nevada the soft white spring wheats, like Dicklow, Defiance, Palouse Bluestem, and Little Club, all have outyielded Marquis under irrigation. Marquis wheat should not be grown under irrigation west of the Rocky Mountains, where there is a good market for these soft white wheats.

MILLING VALUE.

Marquis wheat is a first-class wheat for flour making. The Fife and Bluestem wheats are the standard hard red spring wheats for this purpose. Numerous milling tests show that Marquis is equal or slightly superior to similar samples of Fife and Bluestem wheat.

LIST OF PUBLICATIONS ON WHEATS.

BUREAU OF PLANT INDUSTRY BULLETINS.

- Improvement of the Wheat Crop in California. Bulletin 178. Price, 10 cents.
Cooperative Grain Investigations at McPherson, Kans., 1904-1909. Bulletin 240. Price, 5 cents.
Cereal Experiments in the Texas Panhandle. Bulletin 283. Price, 10 cents.

BUREAU OF PLANT INDUSTRY CIRCULARS.

- Dry-Land Grains for Western North and South Dakota. Circular 59. Price, 5 cents.
Dry-Land Grains in the Great Basin. Circular 61. Price, 5 cents.
Winter Wheat in Western South Dakota. Circular 79.

DEPARTMENT BULLETINS.

- Cereal Investigations at the Nephel Substation. Bulletin 30. Price, 10 cents.
Cereal Experiments at Dickinson, N. Dak. Bulletin 33.
Experiments with Wheat, Oats, and Barley in South Dakota. Bulletin 39. Price, 10 cents.
Cereal Experiments at the Williston Substation. Bulletin 270.
Cereal Investigations on the Belle Fourche Experiment Farm. Bulletin 297.
Cereal Experiments in Maryland and Virginia. Bulletin 336.
Alaska and Stoner, or "Miracle," Wheats: Two Varieties Much Misrepresented. Bulletin 357.

YEARBOOK SEPARATES.

- The Future Wheat Supply of the United States. Separate 511. Price, 5 cents.
Hard Wheats Winning Their Way. Separate 640.

FARMERS' BULLETINS.

- Emmer: A Grain for the Semiarid Regions. Bulletin 139.
Winter Emmer. Bulletin 466.
The Smuts of Wheat, Oats, Barley, and Corn. Bulletin 507.
Durum Wheat. Bulletin 531.
The Culture of Winter Wheat in the Eastern United States. Bulletin 596.
Winter-Wheat Varieties for the Eastern United States. Bulletin 616.
Growing Hard Spring Wheat. Bulletin 678.
Varieties of Hard Spring Wheat. Bulletin 680.