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AGRICULTURE.

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Notes on Varieties and Yield of Wheat.

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Notes on Wheat.

Of the varieties of wheat tested last year, and reported upon in Bulletin No. 8, a number of the most promising sorts were selected, and grown in larger area, that a test of the yield might be made. The plats, where a test of the yield was made, were not less than one twentieth of an acre in size, and the most of them contained $\frac{1}{4}$ of an acre. In some instances, we did not have sufficient seed to sow the full $\frac{1}{4}$ acre.

The larger plats were located on ground, which had grown a crop of ensilage corn. The corn was cut for the silo and the ground plowed and harrowed before sowing the wheat. No manure was applied to these plats. On some smaller plats, where the wheat was put in by hand, fine manure was harrowed into the ground before sowing. This was applied mainly for its mechanical effect upon the soil, to keep it from baking so hard in the spring. In this the top dressing proved an advantage, for the ground did not pack down as firmly as it had done the year before, when no mulch was used. The wheat, in the larger plats, was sown with the Hoosier force feed drill, at the rate of $1\frac{1}{2}$ bushels per acre. The seed was treated with a vitriol solution, to prevent the growth of smut, which does so much damage if no fungicide is used. In one instance white winter wheat was sown without treating with vitriol, and it was not worth harvesting, while seed from the same lot was vitrioled and no smut appeared. While some of the varieties were not entirely free from smut yet, for the most part, the wheat which was vitrioled escaped the ravages, of this fungus.

As to sowing wheat after corn there is much discussion just at present. It has been grown in this way, on the College farm, for the past two years, giving very satisfactory results indeed. Wheat sown in a field after ensilage corn, yielded 40 bushels per acre; while that sown in the same field after oats, did not yield over 25 bushels per acre.

Whether it will pay to grow a crop of corn or some other hoed crop, on the summer fallow, and thus get some returns for the labor expended in cultivation, is an important question. Wherever it has been tried in this valley, so far as I am aware, the yield has increased rather than diminished, under such treatment. In other words, there has been an increase in the yield of wheat due probably, to the better condition of the ground after the thorough cultivation, which it received from tending the corn. The matter of shading the ground with a crop, rather than leaving it exposed to the direct rays of the sun, during the hot dry months, is another reason which should not be omitted. The only question is, can the corn crop be profitably handled after it is grown? This belongs to another branch of farming; but we believe it can be so managed, by means of the silo, and it will be the work of a future Bulletin to show this. We believe the bare summer fallow should be a

thing of the past, in the Willamette valley. It is not rest, that the land needs, but a better system of cultivation.

Very full notes were taken by C. D. Thompson, foreman of the farm, during the season's growth, and upon the character of the grain after threshing. These have been condensed under each variety, and are found on the final pages of the Bulletin, and in the table.

The season was very favorable for an extreme growth of straw, and in some instances the yield was very satisfactory. Some of the varieties would have done better in yield probably, had they been pastured off during the winter and early spring.

Two varieties of imported wheat were sent to the Station, for trial last season. They were called the Hybrid Dattel, and Hybrid Lamed, both having been imported from France, by the U. S. Department of Agriculture. The Hybrid Dattel is a very promising variety, both in yield and in quality. It is a very heavy, white wheat, uniform in size, and the kernel is very hard and flinty.

The Hybrid Lamed, is an Amber wheat, and not as uniform in the size of the kernel or in the quality of the grain, as the Dattel. It did not yield as well as the Dattel. Larger areas of these varieties will be sown, that a more extended trial may be made, before recommending them to the farmers of this state. One of the varieties, will probably prove a very good one for this climate and soil.

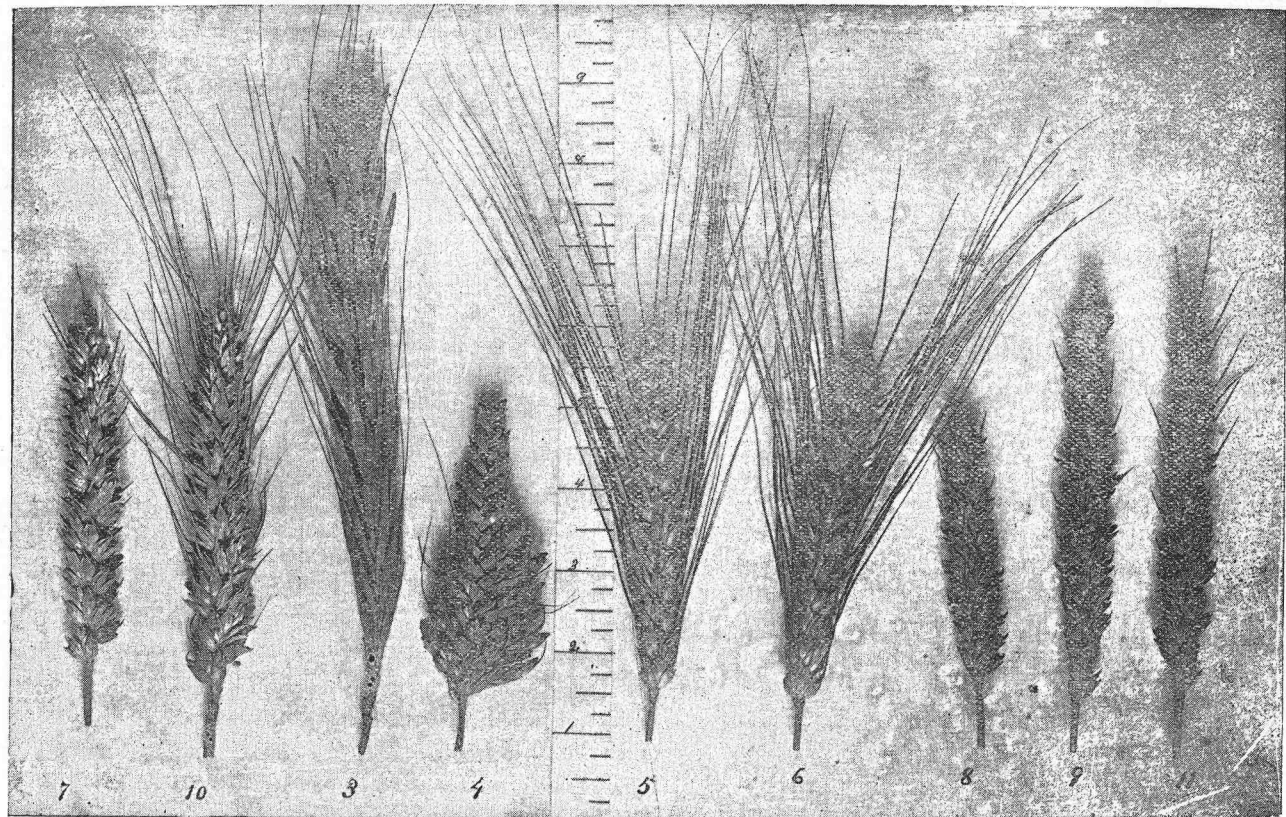
The quality of the grain, which has been grown from imported seed, so far as the appearance indicates, is very much superior to the original; showing that wheat finds, in this portion of the state at least, a very congenial soil and climate.

The Amber wheats are generally heavier than the white varieties, as seen in the table. Were it not for the fact that they are rated two or three cents per bushel less in the market, than white wheat, they would be grown more extensively. Some of the Amber varieties are very fine in quality, yield well, and would prove more hardy than some of the white varieties; yet the farmer is loth to grow them, because of the reduced price. Upon inquiry of some of the leading millers, I find that it is desirable to mix, a portion of red wheat, with the valley white wheat, to make the best quality of flour. Why not encourage the farmers, by paying the full market price, to grow this more hardy wheat, and thus meet the requirements for the manufacture of first quality flour.

In receiving a large number of inquiries for wheat to sow on trial, only a few have desired amber wheat. If it is speculation on the part of buyers, to keep the price of red wheat down, it is time the farmers were awake to the matter; and on the other hand, if the amber wheat is not really desired, and does not make as good flour, let us know that fact.

No. 10, Beryl, Chili, Beal, and Northcolis White, are the best varieties of white wheat, which have been grown on the experimental grounds for two succeeding years. Over a hundred samples of these varieties, have been sent to farmers in the state for trial.

Goose wheat is a large, coarse variety, valued in some localities for feeding purposes. It gives a larger yield than the common wheat and makes a



good grain to grind for stock. It is also ground into meal, which is valued by some in making mush for the table. A head of this wheat is shown in the cut No. 3.

Seven headed wheat is a variety of wheat, deriving its name from the peculiar branching nature of the head. It is not valued for milling purposes; but is grown in large quantities in some localities for stock feed. A head is shown in cut No. 4.

Centennial and Trap are, so far as we can discover, one and the same variety known under different names. Heads of these varieties numbered 5 and 6 appear in the cuts.

No. 10, Beryl, Chili, Beal and Northcolis White also appear in the cuts numbered 7, 8, 9, 10, 11, in the order named.

After two years trial, the following conclusions present themselves, as reasonably well established.

- 1.—That the varieties of wheat imported from foreign countries, and from the Eastern states, have improved in this soil and climate.
- 2.—That of the 64 varieties tested, only five or six, are superior to the varieties already grown in the state.
- 3.—That wheat does well when grown after corn, which has been thoroughly cultivated.
- 4.—That the Amber wheats are generally heavier than the white wheats, and do well in this soil and climate.

Description of Varieties.

Velvet Chaff. Heads loose, uneven, drooping, chaff red, bearded; straw erect, 46 inches high; grain dark amber, good size, plump and flinty, shatters easily.

Red Fultz. Heads rather loose, uneven, well filled, drooping, chaff red, has short awns; straw blue, stands erect, 52 inches high; grain medium size, not all plump, dark amber color.

Nigger. Heads loose and very uneven, chaff white, bearded; straw blue, does not stand up well, 54 inches high; grain long, uneven, slightly shriveled, shatters easily, amber color.

High Grade. Heads uneven length and rather loose, bending over some, chaff white, stem blue; straw fallen, 52 inches in length; grain medium long, pointed, quite plump, very light amber.

Hindustan. Heads loose; medium length, chaff red, bearded: straw blue, stands erect, 52 inches high; grain easily shattered, long, uneven berry, amber color.

Mealy. Heads medium length, rather uneven; compact and well filled, chaff white, awnless; straw white, very soft and erect, 51 inches high; grain badly smutted, small berry, plump, amber color.

Fulcaster. Heads rather short, loose and uneven, chaff white, bearded, does not cover the grain, stem blue, straw weak and fallen, 50 inches in length; grain good size, uniform, amber color.

Ontario Wonder. Heads good length, loose, uniform in size, and well

filled; chaff redish; straw white, brittle, crinkled, 50 inches high; grain short, plump and uniform, light amber color.

Martin's Amber. Heads medium length, rather loose, uneven, but well filled; chaff white, awnless; straw white, soft and erect, 46 inches high; grain medium size, plump and white.

Raub's Black Prolific. Heads medium length, compact, rather uneven, chaff red, bearded; stem blue, straw erect, 53 inches high; grain amber color, uniform and plump.

Golden Cross. Heads from one to four inches long, compact, chaff red, bearded; stem blue, straw erect, 53 inches high, grain amber color, plump and uniform.

Flourspar. Heads good length, loose, chaff white; straw white, fine, stiff, 48 inches high; grain rather small, uneven, mixed in color and quite smutty.

French Imperial. Heads very long and loose; chaff white; straw white and soft, badly fallen, 51 inches in length; grain very dark amber, uneven in size and smutty.

German Emperor. Heads very uneven and loose, chaff red, short awns; stems blue, straw stiff, 43 inches high; grain amber, uniform and plump.

Sardonix. Heads good length, quite uniform; very loose, chaff white; straw white, soft, erect, 52 inches high; grain light amber, large and plump.

Chrysolite. Heads uniform and compact, chaff white; straw white, soft and fallen, 41 inches in length; grain white, uneven in size, plump, and a little smutty.

Northolis Amber. Heads good length and compact, quite uniform in size, chaff white; straw white, coarse, and fallen; grain amber color, good size, uniform and plump.

Sardins. Heads medium length, uniform, loose, chaff white; straw white, rather fine, soft and fallen some, 51 to 62 inches high; grain badly smutted, good size, uniform, dark rusty amber, easily shattered.

Red Club. Heads very short and compact, chaff red; straw stiff, 46 inches high; grain short, plump, very badly smutted.

Jasper. Heads long, slim and loose, chaff amber, bearded; straw coarse, soft, badly fallen, 60 inches long; grain amber color, good size, plump and uniform.

Northolis White. Heads good length, uniform, compact, chaff red; straw white, medium size, erect, 56 inches high; grain white, large, uniform, plump berry. One of the best.

Emerald. Heads long, loose and drooping, chaff dark amber; straw white, medium size, fallen some, 55 inches long; grain shatters, light amber color, long uneven berry.

Willits. Hybrid between wheat and rye. Heads long and compact. In many instances there are five grains in the rank. Chaff white; straw bluish tinge, coarse and stiff, 55 inches high; grain amber color, shatters easily, uneven in size.

Johnson. Heads medium length, quite compact and uniform, chaff white, bearded, some of the awns fall off when ripe; straw bluish tinge,

coarse and stiff, 55 inches high; grain large, white with some grains light amber, uniform in size.

No. 10. Heads long, large, compact, heavy, chaff white; straw white, medium coarse, fallen on account of storm and its extreme growth, it being 68 inches high; grain good size, white, plump and uniform. One of the best varieties.

Clawson. Heads long, loose, chaff red; straw white, soft and weak, badly fallen, 60 inches high; grain good size, long, plump, white, shatters easily.

Assimboia Fife. Heads small and uneven, chaff white; straw white, fine and fallen, 52 inches long; grain light amber color, small, plump, and smutted some.

Chili. Heads good length, quite uniform, rather coarse, chaff white; straw white, coarse, stiff, stands erect 60 inches high, grain white, large berry, uniform and plump. One of the best.

Wheat from Warren Co., Pa. Heads good length, rather even, chaff white; straw bluish, 48 inches high, stiff and coarse; grain white.

Granite. Heads very uneven, compact, chaff red; straw yellowish, fine, soft, quite stiff, 50 inches high; grain uneven size, plump, white with few amber-colored grains.

Basalt. Heads quite uneven, compact, chaff red; straw white, fine, erect, 56 inches high; grain small, rather long, dark amber color.

Missoyen. Heads medium length, flat, very compact, chaff amber, very heavily bearded, some of awns are 5 inches long, a portion of awns drop off when grain is ripe; straw white, coarse, solid almost to bottom of stalk, straw badly fallen, 60 inches long; grain white, very large berry and very hard or flinty.

Trap. Heads very long and flat, compact, chaff white, heavily awned but awns drop when grain is ripe; straw white, coarse, stiff, 70 inches high; grain white, very large, long berry, and not very hard.

Foisy. Heads good length, quite uniform, compact, chaff amber; straw white, medium size, soft, 60 inches high.

Beryl. Heads good length, compact and quite uniform, chaff white; straw coarse, soft, fallen some, 54 inches long; grain white, short, plump berry, little uneven and some smutty.

Amethyst. Heads small, and short, chaff white; straw yellowish, fine, soft, erect, 48 inches high; grain small and uneven, mixed in color—amber and white.

Platinum. Heads small, medium length and loose, chaff white; straw white, fine, soft, erect, 50 inches high; grain small, uniform, plump, white.

Dominion. Heads usually long, medium size and loose, chaff amber; straw white, fine, soft and weak, 54 inches high; grain dark amber, small and plump.

Porcelain. Heads good length, medium size and rather loose, chaff white; straw white, coarse, soft, 55 inches high; grain rather small and mixed amber and white.

Dallis. Heads medium length, compact, chaff amber; straw rather coarse, soft, erect, 52 inches high; grain medium size, uneven, mixed amber and white.

Russian. Heads very uneven in length, small and loose, chaff red; straw rather fine, erect, 55 inches high; grain uneven, plump, amber color.

Silica. Heads unusually good length, loose, chaff white; straw white, fine, erect, 56 inches high.

Atlanti. Same as Messoyen.

Wonder of the World. Heads medium length, flat, compact, very

heavily bearded; straw white, good size, weak, fallen very badly, 63 inches long; grain very uneven, long, flinty berry. This variety does not stool well.

Goose Wheat. Heads large, long and loose, bearded, awns fall off when grain ripens; straw white, medium size, bending with the heavy heads. Straw 58 inches high; grain white, very long, some of the kernels being $\frac{1}{2}$ inch in length. Does not stool very much.

Seven-Headed Wheat. Heads large, club-like, made up of several branches or spikelets; straw very coarse and stiff, bending some with the very heavy heads; grain short, plump, uniform, white.

Ruby. Heads usually very long, pointed and loose, chaff white; straw medium size, stiff, erect, 60 inches high; grain short, very plump, amber color, shatters easily.

Centennial. Same as Trap.

Hornblende. Heads small, medium length, pointed, loose; straw fine, soft, weak, 64 inches long; grain small, uneven, white and flinty.

Hybrid Dattel Imported. Heads medium length, rather compact, chaff brownish; straw yellowish, medium size, soft, erect, 53 inches high; grain white, good size, short, plump and uniform. This will prove a good variety we think.

Hybrid Lamed. Straw and chaff resemble the last variety; heads a little longer and more compact; grain amber color and about the same shape as the other.

White Russian. Heads uneven length, rather compact, chaff red; straw white, soft and weak; grain amber color. Not a desirable variety.

Saskatchewan. Heads small, long and pointed, chaff red; straw very white, fine and soft, 55 inches high; grain short, small, even size, plump, light amber color.

Gneiss. Heads small and short, chaff white; straw white, fine, soft, fallen very badly, 46 inches in length; grain medium size, white and plump.

Chalcedony. Heads small and short, chaff white; straw white, soft, badly fallen, 50 inches in length; grain medium size, white and plump.

Andriala. Heads medium length, rather compact, chaff amber, bearded; straw fine, soft, fallen some, 46 inches long; grain exposed in the head, short, uneven berry and plump.

Sapphire. Heads medium length, loose and uneven, chaff red; straw white and rather coarse, 53 inches high; grain shatters, berry long, white, and not very uniform in size.

Meekins. Heads good length but loose, chaff white; straw white, 58 inches high; grain exposed in head and shatters very easily, dark amber color and uneven.

SPRING VARIETIES.

Canada. Heads rather short, medium compact, chaff white; straw yellowish, medium fine, soft, 35 inches high; grain white and amber mixed, very uneven, plump.

Bli de Bordeaux. Imported. Heads medium length, good size, compact, chaff amber; grain uneven size and shrunken, amber color with few light-colored grains. Thirty-eight inches high.

Defiance. Heads medium length, some very long and loose, chaff white; straw white, 34 inches high; grain uneven size, plump, white.

New York Spring. Heads very long and loose, chaff white; straw yellowish, 36 inches high, amber grain.

Some very large grain was received from Baker City, Oregon, which proved to be Goose Wheat.

Table Showing Yield, Weight Per Bushel, &c.

NAME OF VARIETY.	No. of Plat.	Date of Sowing.	Date of Ripening.	Yield in Bu. Per Acre.	No. of Lbs. Per Bushel.	REMARKS.
White Russian.....	1	Dec. 1	July 22	28 $\frac{2}{3}$	61 $\frac{1}{2}$	$\frac{1}{4}$ acre plat.
Saskatchewan.....	2	" 1	" 22	29 $\frac{2}{3}$	63 $\frac{1}{2}$	" " "
German Emperor.....	3	Nov. 20	" 16	26.2	64 $\frac{1}{2}$	" " "
Mealy.....	4	" 21	" 16	33 $\frac{2}{3}$	63	" " "
Martin's Amber.....	5	" 21	" 16	29.4	63 $\frac{3}{4}$	" " "
Raub's Black Prolific.....	6	" 20	" 16	22.4	64 $\frac{1}{2}$	" " "
Fulcaster.....	7	" 21	" 16	23 $\frac{2}{3}$	66	" " "
Hybrid Dattel.....	8	Dec. 1	" 22	27 $\frac{2}{3}$	62 $\frac{3}{4}$	$\frac{1}{2}$ " " "
French Imperial.....	9	Nov. 20	" 16	14	60 $\frac{1}{2}$	$\frac{1}{4}$ " " "
Golden Cross.....	10	" 20	" 16	52.4	64	" " "
High Grade.....	11	" 21	" 15	30	62 $\frac{1}{2}$	" " "
Red Fultz.....	12	" 21	" 16	30 $\frac{2}{3}$	64	" " "
Hindostan.....	13	" 21	" 15	22 $\frac{2}{3}$	65	" " "
Nigger.....	14	" 2	" 18	22 $\frac{2}{3}$	65	" " "
Ruby.....	15	" 22	" 20	46 $\frac{2}{3}$	63 $\frac{1}{2}$	I-13 " " "
Hybrid Lamed.....	16	Dec. 1	" 22	29 $\frac{2}{3}$	61 $\frac{1}{2}$	$\frac{1}{4}$ " " "
Velvet Chaff.....	17	Nov. 21	" 18	26 $\frac{2}{3}$	66	$\frac{1}{4}$ " " "
Ontario Wonder.....	18	" 21	" 16	25.86	63 $\frac{3}{4}$	" " "
Chili.....	19	" 28	" 18	44.8	64 $\frac{1}{2}$	I-16 " " "
Atlanti.....	20	" 19	" 21	38	64 $\frac{1}{4}$	I-20 " " "
Sardonyx.....	21	" 22	" 17	37	"	" " "
Centennial.....	22	" 19	" 21	40	59 $\frac{1}{4}$	I-20 " " "
Flourspar.....	23	" 22	" 17	"	63 $\frac{1}{2}$	Small plat.
Clawson.....	24	" 18	" 17	41 $\frac{1}{3}$	63 $\frac{1}{4}$	I-20 acre plat.
No. 10.....	25	" 19	" 18	58	63 $\frac{3}{4}$	" " "
Andriala.....	26	" 12	" 18	"	"	" " "
Dominion.....	27	" 13	" 18	"	"	" " "
Chrysolite.....	28	" 12	" 17	"	"	" " "
Gneiss.....	29	" 10	" 18	"	"	" " "
Chalcedony.....	30	" 10	" 18	"	"	" " "
Jasper.....	31	" 12	" 18	"	"	" " "
Willits.....	32	" 15	" 18	"	"	" " "
Northcolis Amber.....	33	" 12	" 18	"	"	" " "
Seven-Headed.....	34	" 19	" 21	"	"	" " "
Sapphire.....	35	" 12	" 18	"	"	" " "
Gypsum.....	36	" 10	" 17	"	"	" " "
Northcolis.....	37	" 12	" 17	"	"	" " "
Red Club.....	38	" 12	" 18	"	"	" " "
Trap.....	39	" 15	" 21	"	"	" " "
Beryl.....	40	" 12	" 12	"	"	" " "
Platinum.....	41	" 12	" 12	"	"	" " "
Assimboia Fife.....	42	" 22	" 22	"	"	" " "
Basalt.....	43	" 10	" 10	"	"	" " "
Amethyst.....	44	" 10	" 10	"	"	" " "
Porcelain.....	45	" 13	" 13	"	"	" " "
Sardins.....	46	" 13	" 13	"	"	" " "
Johnson.....	47	" 15	" 15	"	"	" " "
Granite.....	48	" 10	" 10	"	"	" " "
Hornblende.....	49	" 19	" 19	"	"	" " "
Wonder of the World.....	50	" 19	" 19	"	"	" " "
Beal.....	51	" 19	" 19	"	"	" " "
Poisy.....	52	" 22	" 22	"	"	" " "
Goose.....	53	" 19	" 19	"	"	" " "
Meekin's.....	54	" 12	" 12	"	"	" " "
Silica.....	55	" 22	" 22	"	"	" " "
Dallis.....	56	" 10	" 10	"	"	" " "
Missoyen.....	57	" 15	" 15	"	"	" " "
Bli de Bordeaux.....	58	Apr. 30	Aug. 17	"	"	Spring Wheat.
New York Spring.....	59	May 13	" 17	"	"	" " "
Toronto Canada.....	60	" 2	" 16	"	"	" " "
Defiance.....	61	Apr. 30	" 17	"	"	" " "
Emerald.....	62	Nov. 12	" 17	"	"	Winter Wheat.
Lost Nation.....	63	" 28	July 20	"	"	" " "
Russian.....	64	" 12	" 20	"	"	" " "

Plats too small to warrant an estimate of the yield.