

FIGHTING THE BREAD FAMINE

Total World Yield of Cereals Decreasing Yearly

Population of the World Steadily Increasing



A FEW western farm schools stand between the nation and predicted calamity. Experts and close students of agricultural conditions have lately been freely predicting that a bread famine will engulf the next generation. As competent a judge as James J. Hill has said that within twenty years the world will go hungry to bed unless, meanwhile, a great revolution is accomplished in the treatment of the soil and the abundance of its yield. Year by year, these men have pointed out, the soil grows poorer and weaker; year by year the average yield of cereals per acre has declined; year by year the rich crust of the earth has been washing to the unresting sea. In the great wheat states, despite more farmers and greater acreage under the plow, the gross harvest has grown smaller. Prices have advanced constantly, stimulated in part by these conditions.

In a generation bread will be out of the reach of the ordinary man, and America will face the somber possibility of such famines as have stricken India and Russia on occasions within easy memory. This is the prediction with which a few men are grappling.

If you tell your neighbor that there is to be a bread famine he will ask whether buying wheat ought not to be a safe venture. If you ask the average farmer about it, he will contemplate the returns of dollar wheat and scoff. Tell the same men that their children will have

centuries of primeval rest, anything grew. The result was waste, profligacy, and spoliation of the stored wealth of time.

Pennsylvania Farms First Warning.

The depleted farms of Pennsylvania ruined by generations of cropping to the same seed are the first national warnings of this impending ruin. A tier of states farther west conditions are slightly better, and so on, according to the number of years the land has been used. The methods were all uniformly bad.

In Kansas, for instance, the average acre yield of wheat last year was thirteen bushels. It has been as high as sixteen bushels.

"Only three bushels an acre difference," the average man will say with some disdain. But figure the decline on a million acres, which would be a small fraction of the total area affected in America. Then calculate that the cities grow constantly larger; that the population of the nation increases perhaps 2,000,000 persons a year; and that the land available for the growing of such moderately profitable crops as cereals grows less as population increases. Then add again the fact that every year millions of tons of the rich, wheat making soil are being carried off to the sea, with little chance of natural restitution since the cutting of the forests. Add, again, the acres ruined by poor farming. Then you have an idea of the problem.

Some years ago a number of western colleges of agriculture began to appreciate this condition. For every mouth added to the national population the cry for wheat grew a little louder. Yet less wheat, and not more, was coming from the farms. Prices went up. The colleges quit studying the future right there, and set about remedying the present.

More Wheat to Acre the Need.

Not more wheat acres, but more wheat to the acre. That was the cry. How? Indeed, there was the question. A little study made it plain that lands in

were eliminated because they had been outstripped by others.

Choice Made by Elimination.

From the breeds which remained in the race for the second year the best heads were chosen, and the grains from these planted again and given a second chance to prove themselves. The race had narrowed down, and the outcome was watched closely that year. Two breeds of the wheat surpassed all the rest in greatness of growth and amount of yield. These, then, were chosen as the master seeds from which to produce the new wheat.

The next year this seed, again chosen only from the best heads, was set out in ten acre plots, and the final heat was being run. One of the two breeds won, and was declared supreme. The next year all the available seed from good, full heads was planted. The next year, and that was in 1908, enough of the improved seed had been produced to permit the college to offer small quantities for sale to the farmers of the state under the proviso that they keep the breed pure and resell their product to their neighbors for seed purposes. No farmer was given the seed unless he promised to use the college's method of cultivation.

Thus, for the fall planting of 1909, there was sufficient of this new seed in Kansas to plant upwards of 100,000 acres. Prof. Ten Eyck figures modestly that the added yield on these acres will be ten bushels to the acre, and promises that the wheat yield of Kansas will be a million bushels greater than last.

No End to the Great Problem.

The achievement of this superior breed of wheat does not mean the conclusion of the experiments by any means. Mr. Ten Eyck is proceeding with other tests, with attempts of cross breeding, with experiments in new methods of cultivation, soil, etc.

"I will never finish this great problem," he says. "No

man ever will, for there will always be room for advancement."

But Mr. Ten Eyck has done one thing already. He has demonstrated the fifty bushel wheat idea. The year when the school began growing the seed extensively on its great 5,000 acre experimental farms at Manhattan and Hays, Kas., he called in the millers and the other skeptics, and offered them a demonstration. He showed his new seed wheat, took them over the fields, and pointed out the tillage. Then, last summer, he called back his doubters and let them witness the measuring of the crop.

The experimental farms of the state of Kansas had produced not fifty but fifty-three bushels of wheat to each acre planted. That was the answer.

Many a hard headed farmer will say that the farmer cannot produce the results at a profit on his own farm that can be achieved by a scientist whose only endeavor is to get a result, no matter what the cost may have been. This farmer will go on planting the old seed.

But Prof. Ten Eyck has better evidence than his own. He can send any doubter to a practical Kansas farmer who has produced sixty-five bushels of wheat to the acre on land which had been under continuous cultivation for forty-seven years—twelve bushels more than the agricultural college itself—and on old, famished land.

Holton Farmer Makes Practical Test.

Several years ago M. G. Hamm of near Holton, Kas., heard of the better seed wheat campaign, and decided to make the experiment for himself. He used no soil enricher except ordinary manure, such as every farmer has, or should have. Last summer he thrashed sixty-five bushels of wheat per acre from a forty acre field, using the college seed. He expects to do more.

Mr. Hamm tells the story of this wheat miracle so that any man may understand it:

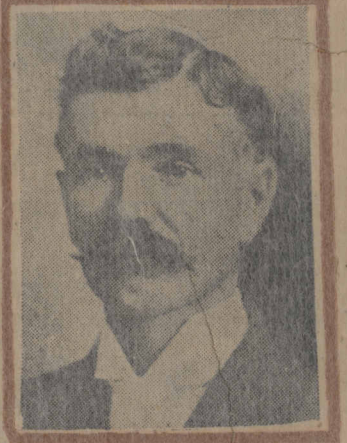
"Five years ago I got interested in this wheat matter," he says, "and I decided to get my land ready for a record breaking crop. The field I chose has been farmed for forty-seven years. Forty of those years had seen the field in corn, and the two years before I started it had been under clover. The first year it was disked and manured with seven loads to the acre, and then cropped with corn. The disk and manuring were repeated the next year, and the corn went seventy bushels to the acre. Again it was disked, manured, and corned, and this time the yield was eighty bushels an acre. I knew that the time was near when I could get ready for the record wheat crop. That was the spring of 1908. I disked it again, manured it, and planted white Swedish oats. These did well until heading time, when the wet weather ruined them. I plowed the oats under green about July 1. Then I disked the land and harrowed it with a heavy float that smoothed and leveled it like a floor. This I repeated after every rain until wheat seeding time.

"Then I sent to the agricultural college for the Ghirka wheat. I planted it about Oct. 1, setting the

An End Row of 4-Foot Wheat of Enormous Yield



M. G. Hamm, Who Raised Sixty-Five Bushels of Wheat an Acre



drill as deep as possible, about two and one-half inches. Then I waited for the wheat to come up.

Young Wheat Given Hard Usage.

"As soon as the wheat came up that fall a neighbor's sheep saw it, and kept it eaten to the ground. The tramping of the sheep packed the ground hard, and when the ground had become frozen, horses and cattle were turned into the field. In the spring it was turned into a pasture until corn planting time. July 6 it was cut. July 14 it was stacked in the barn, and Sept. 26 it was taken out and thrashed.

"The machine measured yield of this crop was sixty-five bushels to the acre, just five times the average yield of Kansas."

Here, then, is the defeat of the wheat famine. A few men, studious scientists, dreaming in their laboratories, or counting the grains of some fine head of wheat, have done it. The farmers will demonstrate it this year. In Mr. Hamm's demonstration lies the hope of the depleted farms farther west. No virgin soil grew his master crop, but land half a century under the plow, and given the impoverishing trial of forty years under the selfsame crop.

In all these states where wheat is the one great field crop thousands of farmers will be planting the improved seed and using the better methods next fall, and the 1911 crop ought to be by many millions of bushels the greatest the nation has ever seen. In two or three years the nation's yield of wheat can easily be doubled. Then what of the predicted bread famine?



Prof. A. M. Ten Eyck - Kansas State Agricultural College

so bread, and you will produce a different result. It is this later phase that these western colleges of the soil have been preaching for some little time.

Coming Harvest to Show the Results.

With the harvest of the coming summer at least one state—Kansas—will demonstrate to the world that men with telescopic vision have foreseen the danger, and that it will be overcome. When the yields of the farms of this greatest of wheat producing states pour into the elevators in the late summer and early fall, and before that, when the registers on the thrashers tick off the number of bushels shaken from the straw of the field, there will be evident the result of an agitation of world wide importance.

Kansas expects to increase its yield a million bushels in 1910. If this expectation is fulfilled it will be the result of the work of a dreamer, or a few dreamers, occupying desks at colleges. In other words, these western schools already have beaten back the famine of the possibility of which few men knew.

There are other states in this same work, notably Wisconsin, Minnesota, and the Dakotas. Illinois and Missouri also have been doing quiet and telling work in the direction of increasing the acre yield of cereals, but in the states first mentioned, where the wheat crop is of the first and greatest importance, the life and heart, in fact, of agriculture, the greatest progress has been made.

America is a new land still—one of such huge territory and rich resources of soil and climate that it has never yet felt the pinch of the absence of food. It must look across the barrier of water to older lands for the significance of such an event. The pioneers of the west flocked across the Ohio and the Mississippi to a land so rich that wantonness was profitable. Men scratched the virgin soil and scattered the seed with all the profligacy of careless Nature—careless because she dares be so. It mattered not. In that rich loam, nourished by

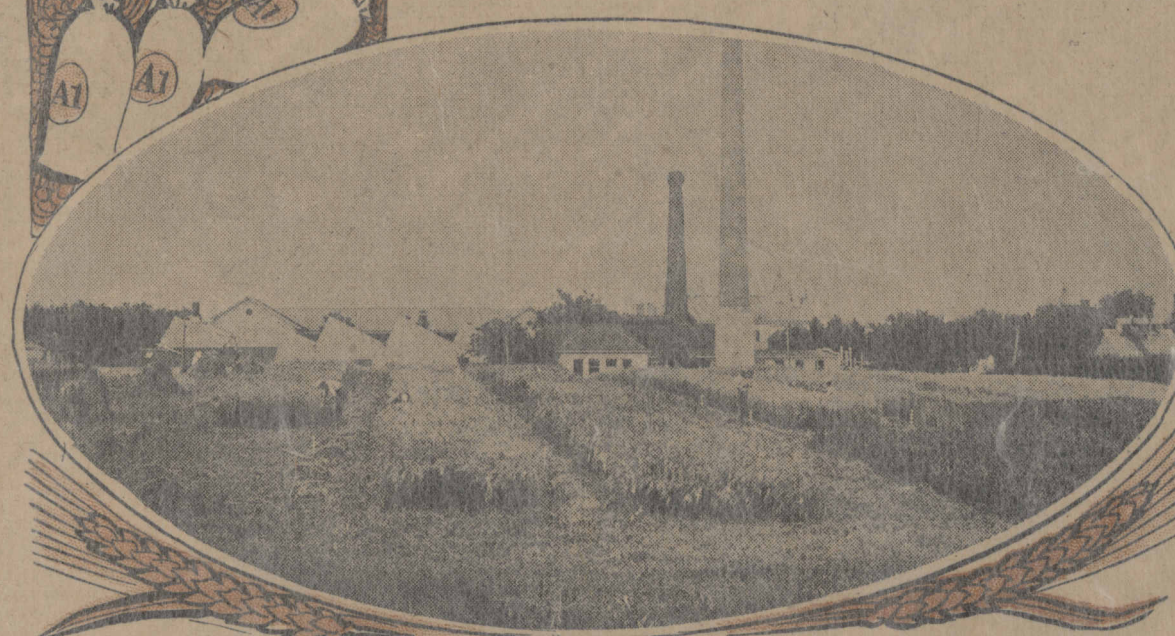
Europe were producing an average of as high as thirty-eight bushels of wheat per acre. The land is no better than ours. The colleges decided that what was needed was education of the wheat farmers, first; better seed, second. Both these ends have been accomplished.

The methods of doing this work were almost identical in all cases, and Kansas, which will be first to show the result to the world, may be chosen to explain. In that state the problem was taken up by A. M. Ten Eyck, professor of agronomy at the State Agricultural college at Manhattan. Mr. Ten Eyck's first line was better seed wheat. The farmers of his state were using devitalized seed, for seed degenerates as do horses or pigs when the "blood" is kept in the same strain constantly. He imported a variety from Russia, and began a campaign of publicity for its use. Now it is generally planted in Kansas, and some improvement has been wrought.

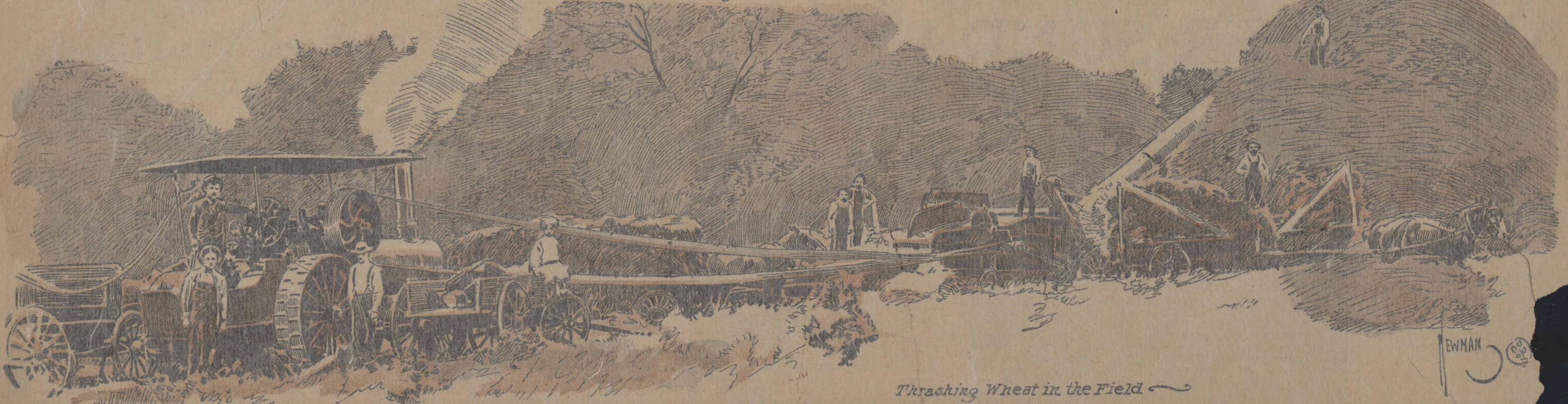
Mr. Ten Eyck next announced that he would shortly produce for the farmers of Kansas a wonder seed wheat, which, if properly cultivated, would make fifty bushels of wheat to the acre possible. Many sneered. The professor, however, had expected all this, and was prepared to weather skepticism. He had imported from all parts of the world several hundred samples of hard wheat seed, and planted these in uniform rows in the same grade of soil on the experiment farm at Manhattan. Each row got the same cultivation and the same care. There began a race between the various breeds of wheat. The first year all but a few breeds of wheat



Testing the Varieties in Tenth Acre Plots



Testing Wheat in More Than a Thousand Separate Rows Thirty Grains Planted To The Row



Thrashing Wheat in the Field