

Studying Agricultural Europe

Henry A. Wallace in Wallace's Farmer.

Swiss Schools, Experiment Stations, and General Agriculture.

For its size, Switzerland probably has more agricultural schools and experiment stations than any country in the world except Holland and Belgium. We visited several of them, and at every one found the German type of scientists hard at work, taking years to solve little details about which most American farmers would care not a particle. For instance, at the experiment station of Liebefeld, near Berne, a Doctor Liechte experiments with manure. He has proved that liquid and solid manure should be kept in a tank by itself and the solid manure should be piled by itself. We asked what was the best way of preserving solid manure. He said it should be moistened with water and packed firmly. It should not be wet with liquid manure, for there is likely to be a loss of ammonia.

There was a good bacteriological laboratory at Liebefeld, and here we saw, under the microscope many kinds of bacteria, good and bad, all stained with India ink in a way of which the scientists are very proud. Here we saw very plainly that horrible beast, Mastitis Streptococcus. It looked like a harmless chain of dots, but is the cause of a serious kind of caked udder.

Looking again, we saw a rod chain of lactic acid bacilli, which it is claimed will prolong life if one drinks a kind of sour milk containing them every day of his life. Still again, we saw one germ and then on another slide twenty or thirty germs. That showed how fast germs will multiply in a day. And many other things we saw, all very interesting, but I should think the average farmer would fail to appreciate much of it. Yet some day most of it will be of great benefit to Swiss farming, and, indeed, to farming all over the world.

Traveling through the valleys of Switzerland in the summer, you will see every few miles barrel-like carts being hauled over the meadows and out behind them will be coming a dark brown spray of liquid manure. The liquid has been gathering in a pit for a month or two, perhaps. It is drained into the barrel-like arrangement of the cart. Then when the cart is driven through the field, the liquid rushes out of a small opening and hits a piece of curved steel, so that it spreads as a spray. Every time after the meadow is cut, the Swiss like, if possible, to put on liquid manure. That it pays is proved by an experiment at Liebefeld, where, without liquid manure, the yield of hay was less than a ton to the acre, and with a small application after every cutting it was over three tons, and with a large application it was nearly six tons. It was interesting to look at these plots and see the small growth where no liquid had been applied. Where large amounts of the liquid manure had been put on after every cutting, the growth was rank, and there was not much clover, but instead orchard grass and tall meadow oat grass were especially thriving. On still another plot, where phosphates and potash had been used with the manure, the clovers were thriving as well as the rank-growing grasses.

Nearly every Swiss agriculturist to whom we talked claimed that liquid manure is absolutely necessary. Their meadow land is worth \$400 to \$600 per acre, and so, if they are to make interest on the investment, they must push the crops along as fast as possible in the short season. By using liquid manure they can cut their meadows five or six times yearly.

Some day in Iowa, if our land becomes sufficiently high-priced, we, too, will be collecting liquid manure in tanks and spreading it on our meadows.

The few pigs we saw in Switzerland were kept in pens in the barns. Green feed was cut and carried to them, and the fattening pigs got some such grain ration as equal parts of corn, barley, and wheat.

We were only in Switzerland a week—so did not have time to learn many definite facts about agricultural conditions. Nevertheless it seemed to us that the farm laborers did not lead a very easy life. They were dressed rather poorly, and looked a little stupid. We were told that their wages varied from \$3 to \$4 a week, with board and room included.

In Switzerland, as in all the countries of Western Europe, there are splendid roads. Up the mountains and across the valleys beautiful, well graded, macadam roads run. A United States Government bulletin is authority for the statement that in mountainous Switzerland there are fewer steep roads than in Iowa.

The typical Swiss rotation on the cultivated land is oats, potatoes, oats, and grass for meadow, for five or six years. The grasses used are much the same as for the English pastures—Italian and perennial rye grass, oat grass, orchard grass, fescues, blue grass, red clover, and alsike clover.

We were told that hay sold last winter for from \$15 to \$20 a ton, and that a good yield per acre was about four tons.


Switzerland can teach the United States something about forestry. Almost a third of the entire country is in timber, most of which is under Government control. In 1910, 2,000,000 square yards of timber was cut, but the Government saw to it that 22,000,000 trees were planted to keep up the forest area.

The educational ideals of leading Swiss agricultural schools surprised us. For instance, at the dairy school there is room for only about thirty-five students. At the present time there are eighty applicants for the thirty-five places. Nevertheless they don't seem to care to enlarge the school. The thirty-five best are selected by competitive examination, the idea seeming to be that the school aims to educate leaders of agriculture, but not the farmers themselves. Nevertheless, we were given to understand that the graduates mostly went back to the farm.

There are several courses, varying from half a year to two years in length and the work is much the same as in our agricultural colleges, but seems more practical. Nearly every student deals either in a practical or a scientific way with agriculture. In the morning the students do practical work in the dairy, while in the afternoon they study books.

The expenses are very low, only \$80 for board, room and tuition for a full year. We thought the Doctor must have made some mistake in the translation, and so asked again, but were reassured that the years' expense was only 400 francs (\$80).

At Zurich, in connection with the University (Polytechnic, they call it) is the National Swiss Agricultural School (Schweizer Landwirtschaftliche Schule). Here 150 students are taking a three-year course. All of the professors were away on vacations when we visited the school, but the jantor showed us over the building. There were fine museums, better than we have at any of our American agricultural colleges. There were models of the different breeds



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of stock, agricultural machinery, and many samples of diseased plants and various injurious insects.

In connection with the agricultural school is a seed control station. Last year 11,600 seed samples were sent in for examination. Any farmer who wishes may have a sample of his seed examined by paying \$1.20. They will then tell him what weed seeds are in his sample, as well as the percentage of germination. Out of nearly 2,000 red clover seed samples examined in 1910 there was an average of less than 4 per cent of weeds seeds, and a germination of 89 per cent.

Nearly every State in the Corn Belt has a seed control station, but, unfortunately, the farmers have not yet learned to make such extensive use of them as have the Swiss farmers. I wonder how many Iowa farmers know that they can get a seed sample analyzed merely by sending it, together with 50 cents, to the State Food and Dairy Commissioner, at Des Moines. In some of the States seed analyses are made free of charge.

At Zurich they also have a station for analyzing fertilizers and feeds. We in the United States have such stations in most of our Eastern States; but in the Corn Belt we are doing very little to see that all the fertilizer and feed manufacturers do the square thing by the farmers.

I found the report of the fertilizer control station for 1911 very interesting, for it indicated what fertilizers Swiss farmers use most extensively. Of the 3,000 analyses, nearly one-third were of acid phosphate, another third of Thomas slag (a phosphatic fertilizer), and most of the rest of superphosphates mixed with either nitrate of soda or potash, or both. This is especially interesting for the reason that the United States owns most of the phosphate deposits of the world.

The Swiss are really good farmers.

They have to be. Our 220,000 Iowa farmers would learn also to farm intensively if they had to make their living from rough, rolling clay and sand soil, one-sixth the area of Iowa. They would learn, as has the Swiss farmer, to use manure and fertilizer properly, and, best of all, they would learn to combine to sell their products to the best advantage.

FROM BREVARD.

Dear Editor:—I was elected Secretary of Canertee Local, No. 2247, for the year 1913, and will be glad to give you all information that can be of interest or encouragement to the brethren, but would be ashamed of any report I could make at this time.

I was chairman of the Committee on Co-operative Distribution of Farm Products, and having seen nothing in our paper in regard to report, I will give it to you as adopted by our State Convention:

Resolutions.—Let each member inform his Local Secretary at each meeting what he has to sell and what he wants to buy and what he will pay and the quantity to sell or buy.

Let the Local Secretary inform his County Secretary the combined quantity of each product; the County Secretary to report the combined quantity of each product to the Carolina Union Farmer (which by agreement with the Manager will be published free).

I am also Business Agent for my Local, and can furnish several hundred dozen eggs, chickens, and butter each week to a good reliable market; also several thousand bushels of corn, potatoes, and apples.

I want every copy of the Carolina Union Farmer at the earliest date possible. Can't hardly wait for it to come when on time. Wish to thank you in behalf of my Local for the very liberal terms for subscription.

Yours fraternally,
F. HENDERSON, Secretary.