

### Further Points from the Seed-growers' Convention.

We give below a synopsis of addresses at the recent Canadian Seed-growers' Convention in Ottawa, for which we had not space last week.

#### PLANT-BREEDING.

Dr. Jas. W. Robertson, in introducing Prof. C. A. Zavitz, said his thoughts expressed themselves in plants. The Experimental Union was an expression of his effort, and indirectly it effected an improvement in all rural conditions. Prof. Zavitz, in introducing his subject, "Heredity in Plants, and its Bearing on Agricultural Problems," said that heredity applied to plants as well as animals. He referred to the work of De Vries, Davenport, Burbank, Garton Bros., Dr. Saunders and son, Hayes, Groff, Biffer, Webber, Neilson and others, in plant improvement. Mendel, an Austrian monk, evolved the Mendel theory.

Prof. Zavitz urged both the plant-breeder and farmer to study closely the character of the variety he was growing. He showed how the Red Fife wheat originated, by getting one plant from a sample of fall wheat that David Fife had sown in 1842, in mistake for spring wheat in Durham Co., Ont. Only one plant became the origin of the most universally-known and celebrated spring wheat to-day, and sown in largest quantities. Mr. Dawson, in Western Ontario, saw in his field of White Dawson wheat which had lodged very badly, a plant that stood up straight, and had a peculiar velvety look in the chaff. This one plant became the origin of Dawson's Golden Chaff fall wheat, which has been of so much value to Ontario. There were three methods, the speaker said, by which improvement was made: (1) By making a collection of plants; (2) selecting an individual plant; and (3) the breeding-plot method by cross-fertilization. The Canadian Seed-growers' Association adopted the first method, and his Station and others the last two methods. In 1903, by saving the seed of one plant, in three years the product was 40 bushels, which became the O. A. C. No. 21 barley, which has succeeded so well of late. In reply to a question, he thought the tame oat and wild oat might possibly cross, but it would be impossible, in his opinion, to have both wild and tame oats produced in one plant.

H. H. Groff, of Simcoe, Ont., read a very interesting paper on "Hybridizing the Gladiolus: Are Its Lessons Possible of General Application?" Every variation in plants, he claimed, had a certain cause. We must learn to know what we are working with, and what we are working for. In his improvement of the gladiolus, he worked on mutations, and tried to infuse new and vigorous characters in weak plants of promising beauty. A London, Eng., paper had said of his selections, that he had added to their beauty and constitution, and had cheapened the seed. He had produced gladiolus half white and half scarlet on same stalk. He said that four years ago he had crossed two varieties of sweet corn, the Black Mexican and Golden Bantam, the stalks of which grew to a height of 6 feet and 4 feet, respectively. The cross is a yellow-colored corn, growing eight feet high, and earing well. The ancestry of the Golden Bantam was detected in the presence of some white kernels in the hybrid. Several speakers bore testimony to the marvellous achievements of Mr. Groff in gladioli.

#### POTATO SELECTION AND ROT.

Wm. H. Taylor, of St. Giles, P. Q., gave the results of crop-raising, with special reference to the potato. By throwing out diseased tubers, he had, in a few years, grown a type of Snowball potato practically immune from rot. The seed is selected at digging time. He used buckwheat as a preparatory crop for potatoes, planting last week in June, when ground is warm, to start quick growth. The Government, he urged, should promote drainage, the lack of which caused Quebec Province a loss of at least \$1,000,000 a year.

Prof. Macoun said, when it was considered that the average yield in Ontario was only 111 bushels per acre, and in Great Britain and Ireland, on poorer soil, double the yield was secured, and the possibilities were 1,000 bushels per acre in Canada, the chance for improvement was wonderful. The later varieties were most resistant to blight. The early varieties should be planted very early, and the late ones very late, the former developing ahead of the disease, and the other avoiding it.

G. H. Clark reported his observations on the work of a Swedish investigator, which went to show that, after some twelve years from the seed, potatoes began to lose their disease-resistant power.

Mr. Rynor cited Ontario growers whose tubers had preserved their good qualities after over 20 years of continuous growing.

#### PITH OF VARIOUS ADDRESSES.

E. S. Archibald, of the Agricultural College, Truro, N. S., reported that substantial progress was being made in Nova Scotia, their greatest need being agricultural education, towards which the Seed Association was rendering valuable aid.

In mixed grains, Daubeney oats and Mandscheuri barley gave the best results in measured bushels and weight at the College Farm.

One grower, by selection in flint corn for a few years, had increased its earliness by ten days.

Prof. Klinck reported much earlier ripening from thickly-sown oats, which also stood more freely. Dr. C. E. Saunders said that the rainfall probably had a considerable influence upon the stage of ripening. Like Prof. Klinck, he found Garton's Regenerated Abundance was a stooling oat.

Prof. Zavitz and Mr. Archibald agreed that mixing grains of like ripening periods gave a much greater yield of bushels per acre.

Prof. F. T. Shutt threw out the suggestion that the quality of Northwestern wheat was not altogether due to soil fertility or heredity, but to climatic conditions, which varied with districts and years. The more starchy wheat came from the moister soils. Hence, "dry-farming" gives more glutinous wheats than on irrigated lands, though the yield will be less.

Otto Herold, of Waterloo, Ont., delivered a valuable paper, showing the practicability of producing field, root and vegetable seeds of superior quality in Canada, and pointing out the measures to be taken to promote so important a work, in which the Association could materially assist.

Donald Innes thought that when more and better tomatoes could be produced from home-grown seeds, surely other vegetable seeds could be produced in Canada.

Prof. Macoun thought the mother plant needed a rich soil to develop strength to produce the seed.

G. H. Clark thought the Canadian climate was superior to that of Europe for seed-growing, but what we lacked was the qualified labor to do the work. Mr. Herold was being very successful, but the question was whether he could produce the seeds to sell in competition with the European-grown seed, in cheapness. In Germany, many growers still adhere to the plan—mass selection—of the Canadian Seed-growers' Association, or in modified form in seed improvement. He commended as a policy for this Association the supplying of members with foundation seed stock developed from a plant of outstanding merit.

Prof. C. A. Zavitz's paper on the foregoing subject indicated the comparative superiority of Canadian home-grown mangel seed in germination. Mr. Herold thought that farmers might make a return of \$100 per acre growing seeds for the trade.

Seed Commissioner G. H. Clark gave an able paper describing the European methods of seed selection in the improvement of field crops. He announced that the Seed Branch would be prepared to bring a man capable to supervise such work in Canada, for those who would undertake it.

Dr. Chas. E. Saunders commended the method of selecting from single plants.

Prof. Klinck said they had been selecting the largest and best heads in the work on the MacDonald Farm, with promising results thus far.

Principal W. J. Black, of the Manitoba Agricultural College, expressed how deeply he was impressed with the meeting, and particularly with the young men assembled, who were trustees for agricultural posterity in Canada.

Theodore Ross, of P. E. I., gave an encouraging report from the Island, and the improvements being made through the aid of the Seed Branch and the Seed Division.

T. H. Woolford, of Alberta, who had given up his large farm, was going to devote forty acres to the work of seed improvement.

### Effects of Weather on Crop Yields.

(English correspondence.)

Some investigation has been attempted in England by Dr. Shaw on the effects of weather on crop yields, but a much more elaborate test has been made by Dr. Lazarenko, in Russia. He claims that the yields of both winter and summer cereals depend directly on the amount of rain during the period of growth, and, inversely, on the sum of the temperatures during the period; that is, plenty of rain and not too high temperatures produce big yields of cereals. The yield of winter grains depended mainly on the rainfall during September and June—the period of germination and early growth, and of intensified growth and heading. The yields were inversely to the temperature during these months. Hot Septembers and Junes resulted in low yields. Dr. Lazarenko found, also, that spring-sown grains were largely influenced by the rains of the previous autumn; spring wheat by previous September rain, and spring barley by previous October rain.

We do not answer questions for non-subscribers. An inquiry, to receive attention, must be accompanied by the full name and address of a subscriber, not for publication, but as an evidence of good-faith. We print only the initials of inquirers' names, and not even those, if requested otherwise, but the full name and address of a subscriber must accompany the query.

## THE DAIRY.

### Cool Your Cream.

It is admitted by all our leading dairy authorities that one of the greatest needs in our creamery industry is the thorough cooling of the cream by the patrons immediately after it has been separated. No intelligent person who knows anything about this phase of dairying would dispute this assertion.

Since the introduction of the hand separator on the farm, the quality of the cream furnished by our patrons has greatly deteriorated. This is not the fault of the hand separator. The separator is a useful implement in any dairy. It is true, however, that before the introduction of the hand separator farmers stored away ice for the sole purpose (as they thought) of separating the cream from the milk. While this ice was harvested for one purpose, it in reality fulfilled two very important uses. It not only assisted in separating the cream from the milk, but it also cooled the cream.

The fact that patrons thought the necessity of securing a supply of ice had been solely for the purpose of separating the cream from the milk, led them into the serious mistake of abandoning the practice of putting away ice altogether when they purchased cream separators. Herein lies the real cause of the deterioration in the quality of our cream since the introduction of the hand separator among our patrons.

To all who are patrons of our creameries, let us say that it is not only your duty, but it will pay you in good honest Canadian dollars and cents to cool your cream. If you neglect this important phase of your dairy operations, you cannot expect your cream-drawer or buttermaker to be able to secure a proper sample of your cream for testing, because it will be too thick and sour for him to obtain a representative test sample; therefore, you lose in dollars and cents. Again, if you do not cool your cream properly, you cannot furnish your creamery with good cream. If you do not furnish good cream, your buttermaker cannot manufacture a good quality of butter. This means the highest market price cannot be obtained for that butter. Here, again, you lose dollars and cents by not cooling your cream.

In selecting the best method of cooling the cream, the farmer must be guided by the conditions existing on his own particular farm. Many farmers have cold springs, others have windmills. Where either a spring or windmill is available, the cream can be thoroughly cooled in the following way. A small covered box is arranged in such a manner that the cold water can flow continuously through it. The water should enter by a pipe at the bottom of the box, and should leave by another pipe in the opposite end, situated at the top. The box is thus kept filled with a continuous supply of cold, running water. It should be made large enough to hold shotgun cans to contain all the cream. This arrangement will be found quite satisfactory for cooling the cream. If you have neither a cool spring or cold windmill-drawn water, then it is not only your duty, but good sound business sense to put away sufficient ice each winter for cooling the cream down to at least 50 degrees F., or under.

In conclusion, we would say that no patron should find any fault whatever with the creamery, so long as he himself is guilty of neglect in caring for his cream. If you are not cooling your cream properly, find fault with yourself, and then remedy the fault.

Perth Co., Ont.

M. ROBERTSON.

### Paid Him to Feed Balanced Ration.

Though the balanced-ration idea may have been pushed too far by extremists, who reduced feeding problems to a basis of mathematical quibbles, while failing to accord due weight to such important, practical points as succulence, palatability and wholesomeness, nevertheless, it has a solid basis in fact. While nobody knows exactly what is a perfectly-balanced ration for any animal, while the needs of individuals differ, and while other factors enter to complicate the problem, still there is no gainsaying that economy demands attention to the compounding of rations, to insure that they will contain not only a sufficient total amount of digestible nutrients to leave a surplus over maintenance, but that a reasonable proportion of these nutrients shall consist of the indispensable element protein, which enters so largely into the composition of blood, flesh and milk-solids. We have yet to hear of a cow making a great milk record, or of a herd yielding a high yearly average of milk, that was not fed a tolerably well-balanced ration.

Both experiments and everyday feeding practice have demonstrated the wisdom of making reasonable effort to feed approximately-balanced rations, purchasing, when necessary, feeds rich in protein, such as bran, oil cake, gluten meal, cottonseed meal, or peas. The writer recalls hearing his grandfather remark once, years ago, long before balanced rations were talked about, that he had never had better results in milk production than