

contained in an Indian corn and Horse Bean mixture in nearly correct proportions, it is still an incomplete food, from deficiency in fat. The Sunflower (*Helianthus annuus*) grows luxuriantly over the whole of the temperate zone of this continent, and the seeds contain a large percentage of fat. The variety known as the "Mammoth Russian" was grown in rows 3 feet apart, with the plants from 3 to 18 inches distant in the rows. There did not appear to be any appreciable difference in the weight of the crop per acre, where the plants were grown close or more distant in the rows. They yielded at the rate of 7½ tons of Sunflower heads per acre. From the analyses made by Mr. Shutt, it was established that they contained 352 pounds of albuminoids and 729 pounds of fat per acre.

The combination for the feeding of cattle may be prepared as follows:—

Half a bushel of Horse Beans are mixed with one-third of a bushel of Indian corn, and are sown or planted on one acre, in rows 3 feet to 3½ feet apart. The method of cultivation to be followed is similar to that for the culture of fodder corn. When the corn reaches the glazing stage of growth, the product from two acres of the mixture, (which being grown together is necessarily handled as one crop), is cut and put into the silo, together with the heads from half an acre of Sunflowers. The Sunflower heads may be reaped with a common sickle, carried to the cutting-box on a cart or wagon, and put through it, on and with the Indian corn and Horse Beans.

The following Table shows the quantities of the nutrients which are contained in the crop from two acres of Indian Corn and Horse Beans grown together, and in the heads from half an acre of Sunflowers grown separately:—

	Albuminoids.	Carbo- hydrates and Fibre.	Fat.
	Lbs.	Lbs.	Lbs.
INDIAN CORN: 15 tons per acre=30 tons	1,092	10,302	324
HORSE BEANS: 4.5 tons per acre=9 tons	490	1,361	125
SUNFLOWER HEADS: 7.5 tons per acre=3.75 tons	176	1,186	364
	1,758	12,849	813

The 666 lbs. of albuminoids in the Horse Beans and Sunflowers are the equivalent of the albuminoids in 115 bushels of mixed cereals (barley, wheat and oats.)

Two acres of fodder corn, at 15 tons per acre, furnish 1,200 single feeds to 50 lbs. each. The albuminoids, in the Horse Beans and in the heads from half an acre of Sunflowers, are the equivalent of the albuminoids in a quantity of mixed cereals sufficient to give 4½ lbs. with every feed of the 1,200. It is to be expected that further experiments will demonstrate that the albuminoids in the Horse Beans and Sunflowers, being in a succulent condition, will be more easily and fully digestible than the ripened cereals. The cost to produce the "Robertson Combination for Ensilage" from 2½ acres, is \$15 more than the cost for growing 2 acres of Indian corn alone. The extra items are:—Sunflower seed for half an acre; labor of planting, cultivating and reaping half an acre of Sunflowers; and Horse Bean seed for 2 acres; total, \$15. Against that outlay of \$15, the return in albuminoids is the equivalent, for the feeding of cattle, of 115 bushels of mixed cereals. I have made no estimate of the value of the large quantity of fat in the Sunflower heads.

A group of milking cows are being fed on a ration, of which the ensilage part is made from mixing the heads of Sunflowers from half an acre with Indian corn fodder from two acres. The cows of another similar group are being fed upon a like ration, of which the ensilage part is from Indian corn alone, with 2 lbs. of grain per head per day more than is allowed the cows of the former or Sunflower group. The milk from the two groups, is set in deep-setting pails in ice water under the same conditions; and the following results are apparent from an average of nine tests:—

	From ration with Sunflower or Ensilage.	From ration with ordinary Indian Corn Ensilage.
	Percentage of fat in skim-milk	.35
Churning period, minutes	30	20
Percentage of fat in buttermilk	.25	.40

The butter from the cows, which are fed on the ration with Sunflower ensilage, has a richer flavor and a slightly higher color than that from the other lot.

The Sunflower ensilage has developed a most agreeable odor, and the cattle are greedily fond of it. Besides the points which have been mentioned, it should not be overlooked that Horse Beans belong to the family of plants which have the faculty of appropriating free nitrogen from the atmosphere for the formation of the albuminoids which they contain. It is possible to increase the fertility of soil rapidly and to a remarkable degree, by growing the crop and feeding it to dairy or fattening stock. Protection to the land and profit to the pockets of the farmers are the two fruits to be expected. These form a capital combination for Canadian farmers, and no personal proprietary right restricts the use of it.

Experimental Farm, JAS. W. ROBERTSON,
Ottawa, Ont., 21st March, 1903.

STOCK.

Isaleigh Grange.

This farm, which is the property of Mr. G. N. Greenshields, Montreal, is now the seat of one of the largest fine stock breeding establishments in the province of Quebec. It is conveniently situated for railway accommodation, being within two and a-half miles of Danville, P. Q., which is on the main line of the G. T. R., between Quebec and Montreal, and near Richmond, the junction between the above line and the Portland branch of G. T. R. The farm contains eight hundred acres of easily worked land, which is very suitable for pasture and growing the crops required in stock feeding, while water in abundance is supplied by the living springs abounding throughout the property, and two never-failing streams conveniently situated for furnishing this essential on a stock farm. Many improvements have already been added since the farm came into the present proprietor's hands, among which are extensive stock and grain barns, sheep houses and piggery, all of which are equipped with modern appliances of most modern character.

Stabling for 100 cattle is provided, and 300 sheep have roomy and convenient quarters, while the piggery is the most perfect of its kind. This building is 100 feet long and 30 feet wide, is built in the most substantial manner, and is heated with steam, so that cold has no effect upon the occupants, let the weather be ever so severe outside. The main barn is 165 feet long by 40 feet wide, contains four threshing floors, with shafting conveniently placed for running the necessary machinery operated in threshing and cleaning the grain, as well as preparing the feed for the stock. A 25-horse engine supplies the power which drives the whole of this machinery, and is also further connected with the milk separator, the circular saw for cutting wood, etc. The engine-house, grain-grinding room, ice-house and dairy, together with a large store room, are situated close to the barn.

Guernseys are the cattle bred at Isaleigh Grange. At the head of this herd is the bull Ontario's Pride 1029, A. G. C. C., which is undoubtedly one of the best bulls of the breed on the continent, and pronounced by that astute judge, Mr. Wm. Crozier, of Long Island, to be one of the best dairy bulls of any breed in America.

The cows are also a remarkably fine lot, and, taken as a whole, display capital dairy points. They have large frames, are smoothly finished, and are among the most handsome of the dairy breeds. The cow Eliza C. 2nd, a lemon-colored fawn, with white markings, comes nearly to the perfection in type of what we consider a dairy cow should be; her grandly developed milk vessels, elastic touch, and handsomely turned horns all bespeak high breeding.

The four-year-old cow May Queen 7th is another grand, large cow that claimed our attention, although there were many others equally good here.

The calves were a remarkably good lot, the gem of the whole collection perhaps being a four-month-old bull calf, Isaleigh Choice, by Ontario's Pride, out of Eliza C. 2nd. This is really a marvellous youngster, showing wonderful size for his age, smooth and level all over, a beautiful handler; in fact, to our mind, about the perfection of what a dairy bull should be.

We cannot leave the cattle without paying a tribute to the herdsman, Mr. M. Mansell, a son of the well-known Shropshire breeder, Mr. T. J. Mansell, of Dudmaston, England. Mr. Mansell, who, we might say, has barely reached his twentieth year, deserves the greatest credit for the beautiful form in which he has brought the herd, numbering over eighty head, through the winter.

The Yorkshire herd, founded on stock from the herd lately owned by the manager, Mr. J. Y. Ormsby, has been increased last year by a large importation from the best herds in England, including two grand stock boars from the well-known herd of Mr. Sanders Spencer. One of these, Holywell Manor, winner of first last year at the Royal Show at Warwick, has been pronounced by good judges, both in England and Canada, a faultless type of a bacon pig. His magnificent hams and well sprung ribs, combined with his tremendous length and depth, cannot but please the most critical eye, while his clean, flat bone and excellent coat of hair indicate a grand constitution.

Among the sows, besides a few choice specimens from Holywell, we noticed a capital sow of Lord Ellesmere's breeding, the dam, we were told, of a prize-winning pen of boars at the Royal; and last, but not least, a beautiful yelt from the Metchley herd

of Mr. D. Gibson, Edgebaston, Birmingham, England. This sow has never been beaten in England, having won at the Royal and numerous other large shows. She is now carrying a litter of pigs to Holywell Prince, also a winner in the best company in England.

After leaving the main building, a few minutes drive with the manager brought us to the sheep barns, where we found, perhaps, as choice a collection of Shrops as can be found in the Dominion. It is not necessary, perhaps, to say much about the sheep, as a short description with illustrations appeared in our December (1892) number. We cannot, however, pass them over without mentioning a magnificent shearing ram, The Other One. This sheep, bred by Mr. George Thompson, of Wroxall, Warwickshire, England, was commended at the Royal, and received the reserved number at the Shropshire and West Midland Show at Welshpool, England, being considered one of the best yearlings of the year. While not overly large to the eye, he is a sheep of tremendous scale, showing a grand back and loin, short couplings, good brisket, and a magnificent fleece. The flock, which numbers over 100 head, exclusive of this year's lambs, of which there were at the time of our visit nearly 50, gives every evidence of careful and judicious handling without the slightest pampering, all the stock sheep being in strictly breeding condition. Besides the pure-bred Shrops, a flock of about 120 grade ewes are being lambed this spring, thus making the total number of sheep wintered at Isaleigh Grange 235, all in charge of an experienced English shepherd, the manifest signs of whose careful management it does not take an experienced eye to detect.

Before closing, we might mention that what especially struck us at Isaleigh Grange was the systematic manner in which everything is carried out, the manager, Mr. J. Y. Ormsby, whose reputation as a stockman is already known, being seconded in a most efficient manner in their respective departments by the farm foreman, Mr. M. Lockwood, and the shepherd, Mr. O. Lloyd, as well as Mr. M. Mansell, to whom we have already referred.

Chatty Letter from the States.

(From our Chicago Correspondent.)

Marketing of live stock, except sheep, is falling far behind last year, though the decrease in cattle is comparatively light.

The fat cattle market is not at all strong, though prices are decidedly better than a year ago, when exporters bought choice cattle at about \$4.00. Some time ago Mr. Armour thought hogs would soon go to \$6.00, and now Mr. Cudahy thinks they will not go below \$7.00. The prices, however, have been on the down grade, and have made a big drop from the high point last month—\$8.75. The fact seems to be that the increased price of pork has reduced the consumptive demand to such an extent that prospects for higher prices, in the near future at least, are not good.

"Hogs scarce" is the one message that comes from all of the swine growing sections. Farmers and feeders are paying as high as 8c. @ 9c. per lb. for pigs and brood sows in many counties, and cannot get what they want at that.

There is a very full marketing of calves, looking as if cattle-men preferred good prices for veals rather than take chances on grown cattle. One day recently about 800 native calves were received, principally from Wisconsin, being the largest run of native "bawlers" this year. Sales were made at \$5@7, largely at \$5.75@6.75, averaging 95 to 114 lbs. As has been previously stated in these letters, Texas calves have been marketed during the past winter months in unprecedented numbers.

A Chicago man who has been travelling in Texas for two months says the business of stock-feeding is developing so rapidly that it will not be long before Texas will have an all-the-year-round beef crop. He thinks the supply of fed cattle will be pretty well out in about thirty days, and then grassers will be ready to move right along. Cattle men expect better prices than last year. Cottonseed meal and hulls constitute the chief feed of the Texas cattle this year.

Mexico has repealed the duty on American corn (maize), and the state farmers, especially those in the southwestern portion of the country, are rejoicing.

A company of Chicago capitalists is engaged in erecting slaughter and refrigerating plants in Mexico, and the people of that republic are being urged to raise more good animals.

Boston and Chicago capitalists are trying to establish a large beef and pork packing plant at Fort Worth, Texas, with some show of success.

Meat distributing centres are constantly multiplying.

Some hay-fed northwestern range cattle were recently marketed here. Eighty-four head, 1,248 lbs., sold at \$4.15, and 44 head, averaging 1,187 lbs., sold at the same price. These are about such cattle as could be raised in the Canadian Northwest. A lot of 73 corn-fed western range steers, averaging 1,271 lbs., sold at \$5.25. Some seven-year-old 1,850 lb. cattle, sold at \$4.60, while fat two-year-olds sold at \$5.50. The owner of the seven-year-olds was holding to get a better price from year to year.