

heads from the growing crops. Others have arranged to pick large heads from the sheaves in the barn.

I desire to obtain a small quantity of seed from different localities; and also to learn how great numbers of seeds per head of oats and wheat have been secured in different parts of Canada. To gain the co-operation of the boys and girls, and also of teachers, I offer the following prizes for open competition.

FOR THE 100 HEADS BEARING THE LARGEST NUMBER OF SEEDS.

OATS.	WHEAT.
First prize.....\$20	First prize.....\$20
Second ".....10	Second ".....10
Third ".....5	Third ".....5
Fourth ".....4	Fourth ".....4
Fifth ".....3	Fifth ".....3
Sixth ".....2	Sixth ".....2
Seventh ".....1	Seventh ".....1
Eighth ".....1	Eighth ".....1
Ninth ".....1	Ninth ".....1
Tenth ".....1	Tenth ".....1
Eleventh ".....1	Eleventh ".....1
Twelfth ".....1	Twelfth ".....1
Total.....\$50	Total.....\$50

The whole of each lot of 100 heads should be picked from one variety, grown in one field, and only from a crop which has given a large yield per acre.

I shall want every competitor to furnish from the same crop ten (10) heads with the smallest number of seeds per head which he or she can find. But the number of seeds in the small heads will not be considered in making the awards.

I hope the boys and girls will not trouble to write for any further information, but select the 100 largest heads of grain and save them carefully with the grain on.

Full particulars regarding the report to accompany the heads, and some other matters, will be given in the next issue of the FARMER'S ADVOCATE.

I shall watch with keen interest the part the boys and girls and teachers take in this movement for the improvement of the crops of the country.

JAS. W. ROBERTSON.

Ottawa, 18th Sept., 1899.

Preserving Seed Potatoes.

We hear repeated complaints about poor crops of potatoes, and one of the chief causes of failure has been the poor growth made by the seed. A potato-grower who understands his business greatly dislikes to plant anything but sound seed that has not sprouted, and if he is to have such seed to plant, he must keep his potatoes, from digging time to planting time, so that they will not deteriorate by sprouting, heating, freezing, or other causes. Farmers as a rule do not fully appreciate the injury sustained by the seed sprouting. The first sprout makes the strongest plant, and when that is broken off nature will send out a second sprout from the same eye, but it will be much weaker. If potatoes are kept warm all winter and sprouted two or three times, they will be almost worthless for seed or eating either, as the tuber is then well-nigh exhausted. Since like produces like, it pays to plant good-sized seed of smooth form, and enough of these can be selected at digging time to plant next spring. Now, in order to keep these properly, they should be stored where it is dark and the temperature is down near the freezing point. If potatoes are put away dry and clean and under these conditions, there need be no fear but what they will make good seed when wanted next spring. Some potato-growing specialists have their seed held all winter and spring in cold storage, but this is hardly practical for the ordinary potato-grower. A compartment of the cellar where no effect of fire reaches can be held about right with care during the winter, but the trouble arrives with the warm days of spring, when the windows (double) should be opened on cool nights and kept tightly closed and dark at other times.

Perhaps the safest plan, however, is to pit them in pits about three feet wide, on top of the ground where water will not lodge. One hundred bushels can be put in a pile of this width and about thirty feet long. When the pile is nicely pointed up cover with straw to the depth of four or five inches (pressed down), putting a layer of forkfuls around the base, then another above and lapping over the first, and so on up, which will tend to shed water. Now cover with three or four inches of earth, then, when this is frozen and before it gets cold enough to run any risk of injury to the potatoes, put on another layer of straw in the same way and thickness, and about eight or ten inches thick of earth, topping out well so as to shed water. The two air spaces of straw should keep a uniform temperature without fear of frost or heating in the pile. Of course, the potatoes should be dry, and thoroughly cooled for some time after being dug, before the piles are closed up, or some heat may generate. Along about the middle of March, when the ground over the pile is frozen solidly, the pit should be covered from one and one-half to two feet deep with straw to keep it frozen. Of course, the warmth from below will gradually take the frost out and warm up the pile, but not nearly as quickly as this influence together with the sun and rain. Potatoes kept in this way until they are needed to plant, will do their part in providing a maximum crop of tubers in the fall of 1900.

Fall Cultivation and Plowing.

To the Editor FARMER'S ADVOCATE:

SIR,—The subject of fall cultivation is one that I would like to see pretty fully discussed through your columns. It is, as you intimated, a subject of increasing interest, and I might add, of very great importance, because in my judgment a man's success as a farmer depends very largely on the way in which he manages his fields during the fall months.

Do not know that I have any new ideas to advance, because, in the main, we are following the "good old-fashioned way"; but I will endeavor as briefly as possible to give you an outline of our method, together with a reason for the faith that is in me, in the hope that I may, perhaps, induce some abler pen than mine to take the subject up and give to it that prominence and thorough discussion which its importance would seem to warrant.

We have adopted a short rotation in which a clover sod is plowed under every four years, so that every fall about 50% of our stubble land has been seeded to clover. The balance is gang plowed as soon after harvest as the conditions will permit. We use a two-furrow gang plow, holding it firmly, and doing as thorough work as possible. On soils of a free, open texture, the purpose might, perhaps, be just as well served by a disk or spade harrow, followed by a broad-share cultivator; but on a tolerably heavy clay loam such as we are working, I know of no other implement on the market that will do the work as satisfactorily as a good-running gang plow properly handled.

This gang plowing after harvest I believe to be one of the most important of all the tillage operations of the year, whether it be for the destruction of weeds or to mellow the soil and unlock fertility.

After gang plowing we harrow thoroughly, and start the single plow as early as possible, or at least early enough to get all the cross-plowing done before the land gets too soft and wet. I have noticed frequently that the fields that were plowed the previous fall, while they were dry and hard, work up freer and nicer in the spring than those that were plowed a little on the wet side.

Of course, there is a happy medium when land may be said to be in the best possible condition for plowing; but since we cannot get it all plowed just when it is at its best, we think it better to get it done a little early rather than a little late. Early plowing, too, is more effective than late in the destruction of weeds.

I believe that we cannot easily attach too much importance to the manner in which the fall plowing is done. I believe that just here is where we farmers very often allow our carelessness to interfere with our prosperity. The ideal ridge is plowed in narrow, evenly-turned furrows, laid fairly well up on their edge, in order to expose to the weather as large a surface as possible. Especial care should be taken to give the ridge a gradual regular slope from crown to finish, leaving no pockets or depressions to interfere with the free drainage of the water.

We are not plowing as deeply as we did; say about five inches, when formerly we plowed seven. We are every year being more and more converted to the shallow system of cultivation. I believe that the principle advocated by Mr. Rennie is correct, viz., that we should keep the decaying vegetable matter as close to the surface as possible, and cultivate the lower layers of soil by means of clover roots and winter's frost.

We plow our corn stubble as shallow as we can hold the plow, say 2½ or 3 inches, so as to cut the roots off just below the surface. We find that in this way we can harrow the stubble nearly all to pieces the next spring, and so have less trouble with it than by any other plan that we have tried.

After plowing all our stubble land, we plow what we can of that part of our clover sod which is intended for roots or grain the following year. The balance, which is intended for corn, we never plow until spring.

The plow is in every case the last implement on our fields in the fall. We never harrow or cultivate after the plow. The principle that we seek to observe from start to finish is to *weather* the soil as much as possible, without pulverizing it any more than is necessary.

If land of a clayey nature is worked down too fine in the fall, it will run together during the winter and work up the following spring tough and soggy; but if handled after the manner that I have described, leaving it open and porous, the oxidizing influence of the air circulating through it during the fall and winter will not only unlock the latent plant food, but will cause the soil to flocculate, so that the following spring it will work down "as mellow as an ash-heap."

I will close by repeating the hope already expressed, that what I have said may be the means of drawing out some valuable discussion on this very important subject.

A. P. KETCHEN.

Huron Co., Ont.

No Farmer Can Afford to do Without the "Advocate."

I may say in reference to the ADVOCATE, that I do not think any farmer can afford to do without it.

J. A. SMITH.

Austin, Man., Aug., 1899.

The Ogilvie Milling Co. are going to erect large elevators and a grist mill at Fort William. Another sign of the growth of the West.

Fairs of 1899.

CANADA.

North Perth, Stratford.....	Oct. 3 to 4.
Arran Tara, Tara.....	" 3 " 4.
South Oxford and Dereham.....	" 3 " 4.
British Columbia, New Westminster.....	" 3 " 6.
Six Nations, Ohsweken.....	" 4 " 6.
East York, Markham.....	" 4 " 6.
North Renfrew, Beachburg.....	" 5 " 6.
South Norwich, Otterville.....	" 6 " 7.
"World's" Fair, Rockton.....	" 10 " 11.
Burford, Burford.....	" 11 " 12.
Caledonia.....	" 12 " 13.
Orford, Highgate.....	" 13 " 14.
Norfolk Union, Simcoe.....	" 17 " 19.

UNITED STATES.

St. Louis, St. Louis, Mo.....	Oct. 2 to 7.
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DAIRY.

Home Dairy Buttermaking.

BY GEO. RICE.

I am inclined to think that the aroma of butter is mostly affected by feed, at least primarily. The aroma of June or grass butter is the highest, other things being equal. Of course, if cows eat weeds or drink foul water it will not be, but as our work in the butter line comes in winter, the problem is to have an equal flavor then, and we are able to do so by feeding good wholesome food. Roots, ensilage, bran and clover hay are our mainstay. As milk bears so close a relation to the blood, if not derived from it, whatsoever contributes to keep the blood and system in high tone must necessarily have an influence upon the milk production, both quantity and flavor. I take issue here with those who are forever belittling one of our very best foods; that is, roots. I know from my own experience that feeding turnips, when done at the proper time, does not injure the flavor of butter, but I believe, on the other hand, by purifying the blood, is a benefit. I feed roots twice every day from November to May, mostly turnips, and see the records our cows make! I have a private creamery plant, and sell our own butter at top market prices of Toronto market, which is the best of proof that our system of feeding is all right; in fact, the aroma and flavor are pronounced very fine. Of course, turnips can be abused by feeding before milking, but there are many other things that need attending to.

I should say the most general bad practice is in caring for the milk. Some seem to think milk in winter does not need aeration. A too general practice is to put the milk in a large can in a cold place, and let it alone. The result is a scum forms over the milk as well as cream, and the animal odor has no chance to escape. The milk gets cold, most likely freezes some, and to thaw it out the next mess of warm milk is poured right into same can, which makes a double bad practice. Milk should not be frozen, and warm milk should not be added to cold milk until aerated and cooled to 60°. I consider the simplest way to aerate milk is to keep it in pails, and stir or pour occasionally to keep the cream from forming over the top, as even in pails a film will soon form that retains heat and odors. I consider the care of cows and their milk as of first importance. No one can make a fine-flavored butter out of a poor-flavored milk. Though milk not aerated may have no particular bad flavor, yet it is "dead" or "flat."

Texture of butter is largely under control of the buttermaker. Cream must be at the right temperature for at least an hour before churning, as too warm cream will produce too soft butter. Butter, no matter how nice the grain when churned, can be spoiled by overworking, and especially in a warm room. To make nice butter I churn at 58° to 62°, wash water 55° to 58°, salt and let stand for awhile, and work, keeping temperature of room at 58° to 60°. Attending to temperature is, I consider, the best way to make a uniform article.

As to keeping quality, I know nothing about it, as I want to make butter so good it will not need to be kept, but consider a really fine article will have the best keeping quality. An attractive appearance is very important. Not only does it please the eye, but we are wont to associate tidiness with cleanliness all the way through. If placed in tubs, they should be neat and clean outside. If wrapped in butter papers (pound prints), pains should be taken to have the paper tight and ends folded neatly.

Brookbank Farm, Oxford Co., Ont.

Convention of Cheese and Butter Makers.

At a meeting, at London on Sept. 13th, of the Board of Directors of the Cheese and Butter Makers' Association of Western Ontario, of whom were present President T. B. Millar, Vice-President Geo. H. Barr, Secretary John Brodie, Geo. E. Goodhand, James Morrison, W. W. Brown, and T. E. Nimmo, it was decided to hold their next annual convention at Ingersoll, on Jan. 31st and Feb. 1st, 1900. An exhibit of cheese and butter will be made a special feature of the gathering, when \$150 will be given in cash prizes. Fifty dollars have been granted by the town of Ingersoll for prizes, as well as the use of a free hall, together with light and heat for the meeting.