

ations can be maintained for method of selection recommendation. At the Ontario about thirty varieties of grown continuously for a without any change what to another. These varieties and six-rowed barley, hulled, common spring wheat, and results show that in many years, instead of a decrease actual increase in yield of grain has changed but little in fertility, and no plant selection selection of the seed and the were given due attention, and that a variety suitable to the on which it is grown, can for a long number of years, is, of course, quite in order, at a considerable increase in unnecessary to change the purpose of rejuvenation, or is. Improvement through be the aim of every farmer.

VARIETIES.

pts to advise varieties for varied field as Ontario, or recommendations must be correspond, in almost every kind or more varieties that have qualities when grown east. In oats, one must look for of hull, a fair amount of up well, and a good yield of Eastern Ontario, Prof. J. for Experimental Farms, Banner, which is a tried and that has stood the test of a very bad mistake who of Banner oats. Another will often out-yield the one, and under many circumstances satisfactory results. The is thin in the hull, and a. A. C. No. 72 is of recent up remarkably well with quality and yield. Prof. brought this oat into export for its popular acceptance in Ontario. It has given satisfaction, in field crop competition varieties, such as Abundant New Sensation, are also The Daubeney and O. A. C. suitable to be sown with They will be discussed in

are two leading varieties, and O. A. C. No. 21. It 5 per cent. of all barleys consists of the two varieties six-rowed, bearded, white, the O. A. C. No. 21 is product rapid progress. It is a

used for the production of variety for many years has Marquis has been introduced and has done very well. As er, it will not give the same Red Fife. Of the durum or at known variety is Wild

the Common Gray bucking variety of this grain in late years, been replaced by the Silver Hull and varieties. At the Ontario Rye Buckwheat surpassed in the average yield ten-year period of experiment. Buckwheat has been grown in the Provinces, especially

ar farm crop in Ontario. sown on light soils where would not thrive. The held at the Ontario Agricultural order named: O. A. C. No. 26.8 bushels; Common, Spring, 23.4 bushels.

IN MIXTURES.

popular mixture of grains that made up of oats and variety of oats is different grains may ripen of Daubeney oats combined A. C. No. 21 barley have tion as a farm crop. The s proven itself a better eney, and, since it is just sed in a mixture of this proven itself to be very purpose.

ort to combinations, in le grain for fattening purpose in Huron made up of one bushel of barley, and one peck

PREPAREDNESS.

Whether it is wise for neutral nations to inaugurate a campaign of "Preparedness" can be left for their politicians to discuss. We expect seeding will soon come again in Canada, for we have the assurance that "Seedtime and harvest shall not fail," and, seeing that every hour will be a precious one when that time comes, everything possible in a preparatory way should be done. The farmers' campaign of "Preparedness" will be a profitable one to him and his country. The farmers of Canada have a duty; they are expected to produce. We hope the harvest of 1916 will equal that of last season. Let us do all we can to bring it about.

THE DAIRY.

Ice Supply on the Dairy Farm.

During the summer months dairymen usually experience more or less difficulty in keeping the milk or cream from deteriorating in quality before it is delivered to the cheese factory or creamery. At ordinary summer temperature it entails a good deal of work to cool the milk sufficiently to prevent the lactic acid bacteria from multiplying and causing the milk to become sour before it is delivered. Especially is this the case when endeavoring to keep Saturday night's milk until Monday morning. It is difficult to cool the milk much below 70 degrees with ordinary well water. If milk is to be kept sweet, it should be cooled to 60 degrees or lower. Without a supply of ice it is almost impossible to maintain this temperature on the average farm. The better the condition in which milk is delivered to the factory the easier it is for the cheese maker to manufacture a high-class product. The same applies to cream—it should be cooled immediately after separating and prevented from becoming too sour before it is shipped, and while water may be used for cooling purposes, it takes longer and is not so efficient as ice. Seldom does a summer pass but one or more cans of milk are lost that might have been saved by having a supply of ice in readiness. There may yet be an opportunity this winter to secure a sufficient supply. Ice houses and methods of storing ice were fully discussed in a recent issue of this paper.

Value of the Curry Comb.

The value of the curry comb is universally recognized by horse-men, but, as yet, grooming of the dairy cow is not generally practiced on the average farm. With the scarcity of labor most farmers find other work occupying their time, they believe, to better advantage than currying the cows. The question arises: will it pay in actual cash to groom the cows daily? One dairyman recently stated that he believed grooming would increase the flow of milk per cow by two quarts per day when a cow was in full flow of milk, or, with a herd of twenty cows, the increase would be sufficient to pay a man fair wages. Taking five minutes per day to groom a cow or one hour and forty minutes for a herd of twenty, the remainder of the day would be free for other work. Grooming tends to keep the hide clean and the pores open; consequently the cows will be healthier than those not groomed. The dirt and loose hairs brushed off the body each day will naturally lessen the amount of dirt falling into the pail during milking, making it easier to keep the milk up to a high quality. A well-groomed cow is attractive to the eye, which has a cash value if the animal is for sale. Taking everything into consideration, using the curry-comb and brush on the cow is time well spent.

Cleanliness at Milking Time.

Twice each day dairymen draw from their cows a finished product, a food ready for use, or capable of being further manufactured into other valuable food products. No article of human diet is more susceptible to undesirable changes, due to the delicate nature of the milk itself and to conditions naturally surrounding its production and handling. Milk is readily affected by bacteria, found on the body of the cow and on hay, bedding or dust-laden atmosphere falling into the freshly-drawn milk. The extent of this source of contamination depends on the care cows receive, the cleanliness of the stable air at time of milking, the carefulness of the milker and the utensils used. Unless the udder is diseased, it is claimed that there will be few bacteria in the milk when first drawn, but it is subject to contamination from the moment it is drawn until removed from the stable to a place that is free from odors or dirt. The aim of the dairyman should be to reduce the sources of contamination to a minimum. This may be done with a degree of success through a little extra exertion. If the side of the cow and the udder are wiped with a damp cloth just previous to milking, the danger of bacteria getting into the milk from this source is lessened. In some stables the chores are not planned so that the stable will be free from dust at milking time, but just previous to milking, or while the milking is being done, the feeder puts straw or hay down from the barn and proceeds to feed the cows, thus filling the air with dust and making it impossible to keep the milk clean. By a little planning of the work, the stable can be kept practically free from dust for a short time morning and evening. After the milk is removed from the stable, feeds which cause a dust or strong odor may be fed. In stables where certified milk is produced every effort is made to keep the cows' bodies clean and the air free from dust while

the milk is being drawn. There is danger of bacteria lodging and growing in cracks or crevices of pails or cans that are difficult to wash. The pail with an open seam may be the cause of serious trouble. Few milkers take the time to put on a special coat and apron for milking, but apart from being more sanitary, they protect the everyday clothes from becoming spotted with milk.

Besides bacteria, there are taints and odors which affect the quality of milk and its products. These odors are absorbed by the milk after it is drawn from the cow. If milk is exposed to any strong odor, or foul air, resulting from lack of ventilation in the stable at milking time, these odors will be taken up quite rapidly. Or, if milk is being cooled by use of an aerator, it is liable to absorb any strong odor from the atmosphere. These "off" flavors are strongest when the milk is warm and are less pronounced as milk becomes older, especially if subjected to some form of aeration in a fresh, clean atmosphere.

Taints and bacteria affect all milk, more or less, and every dairyman should endeavor to lessen the sources of contamination, by taking extra care at milking time and in cooling the milk properly after it is removed from the stable. The market demands a high-class product, whether in the form of milk, cheese or butter. The man selling milk direct to customers in a town or city is obliged to keep the milk up to the standard in order to retain customers. The man supplying milk to a cheese factory or cream to a creamery is not affected directly, but indirectly he suffers sooner or later if poor quality milk or cream is delivered. The cheese maker cannot make first class cheese from second-grade milk, and the quantity of milk to make a pound of cheese is increased. Likewise with the creameryman—it requires good milk to produce good cream, and the proper care must be taken of the cream if the highest-priced butter is to be made. There is need for a uniform method of caring for milk and cream in order that a uniform product may be manufactured that will compete favorably with the products of other countries on any market. The solution begins with taking every precaution at milking time.

POULTRY.

Egg-Laying Contest.

The Philadelphia North American International Egg-Laying Competition conducted at the Agricultural Experiment Station, Delaware College, Newark, U.S.A., completed the fourteenth week of the fifth year of the competition on Saturday, February 5th, with a pen of White Wyandottes in the lead to date and a pen of White Leghorns laying the largest number of eggs for the week beginning January 29th. The number of eggs, gathered from the 100 pens of five birds each for the fourteen weeks, was 14,173, with 1,737 laid during the fourteenth week.

The pen of White Wyandottes from Valley Green Farm, Whitmarsh, Pa., leads with 308 eggs to their credit. They are followed by a pen of the same breed, owned by Tom Barron, Catforth, Eng., which laid 279 eggs. A pen of Buff Plymouth Rocks stands third, having laid 267 eggs in the time mentioned. Single-combed Rhode Island Reds, entered by Woodman and Smith of Wycombe, Pa., came fourth, with 266 eggs to their credit. A pen of White Leghorns, entered by the Diamond Egg and Poultry Farm, Wilmington, Del., laid 31 eggs for the week, beginning January 29th, or a little over 88 per cent. of the possible number. Several pens of the different breeds laid over 75 per cent. during the week.

Some Points in Incubation.

Editor "The Farmer's Advocate":

We are now at the season of the year when all good poultrymen are either getting ready to start, or have already started, their incubators, and are preparing brooders, etc., for the reception of the March and April chicks, which make the winter layers. There will probably be the usual number of beginners in the poultry business, may be more than usual; and perhaps a few words of advice and warning, re artificial incubation, to these would not be out of place, and possibly there may be a word or two which will be of use to the fully-experienced poultryman.

Poor incubator hatches are caused by a variety of circumstances, and we must not immediately blame the makers of the particular machine used, when we only get a few, mostly deformed, weak, live chicks out of a set of 200 fertile eggs, the majority of the eggs containing chicks dead in the shell at various stages of development. This is often the result of one of the following causes, and we should ascertain if any of them apply to our case:

1. Use of immature or weak breeding stock. Only birds of a vigorous constitution should be allowed in the breeding pens.

2. Purchase of cheap eggs or stock from some unreliable breeder. Do not forget that the best is none too good in the poultry business, as in any other.

3. Use of old eggs for hatching. Eggs that are old will not hatch well. The best eggs to use are those that are placed in the incubator the day they are laid; eggs are in good condition for hatching, if kept in a cool place, up to 10 days

after they are laid, after they are two weeks old one cannot depend on them.

4. Running of the incubator at too high or too low temperature with many variations. The fewer variations there are from 108 degrees in the incubator all through the period of incubation, the better will the hatch be. A uniform temperature is necessary for any degree of success. When the chicks are coming out of the shell pretty lively, the temperature will probably go up a degree or so, which will do no harm, provided it does not go above 105 degrees; when the lamp flame should be turned down in order to keep it at that.

5. Lack of moisture in the room in which the incubator is run. In the case of those machines which have no sand tray provided, and rely on ventilation alone for supply of moisture, this is one of the greatest causes of chicks dead in the shell, and, although it may not be absolutely overcome, much better results may be obtained if the directions sent out with the various machines are faithfully followed, and where we find, by the use of the wet and dry bulb thermometer, that there is a lack of moisture, then we must supply it by artificial means. Every machine has full directions sent with it for supplying moisture in case of necessity, and these must be followed.

6. Rough handling of the eggs in turning. It only takes really a very slight jar to kill the embryo within the egg; especially during the first week or ten days. The periods near the third, seventh, fourteenth, and nineteenth days are very critical, and a slight mishap at any of these times is disastrous to the life of the unhatched chick.

7. Turning the eggs with dirty or oily hands. As a very small drop of kerosene oil on the shell will prevent the necessary circulation of air in the egg, and thus kill the embryo chick, one should be careful that the hands are absolutely clean before turning is started.

8. Omitting to test the thermometer. None of the incubator manufacturers can guarantee the accuracy of the thermometer, owing to the peculiar nature of the glass, which will sometimes shrink after sealing, and thus run the mercury up half a degree or more. This variation sometimes takes place from season to season, and to make certain of accuracy the thermometer must be tested at the beginning of each season.

If we are sure that none of the above causes of failure apply to our particular case, then I would advise writing to the makers of the machine used, and give full particulars of how the incubator was run, etc., but, as I said at the beginning, do not blame the machine until all other possible causes of failure have been investigated.

Given any of the better known incubators, eggs from good, vigorous stock, and reasonable care and attention to the above points, and also the directions sent out with each machine, I venture to say that an 80 per cent. hatch of fertile eggs is comparatively easy to obtain, and 95 per cent. is quite possible.

N. S.

ERNEST GRAZE.

HORTICULTURE.

The Hot-bed and How to Make It.

The efficiency and usefulness of the garden can be increased wonderfully through the services of the hot-bed. There are some crops that cannot be brought to a satisfactory stage of ripeness without a start in some artificial manner, and there are plenty of garden plants that can be made fit for table use weeks in advance of their usual time of maturity, if the young plants are born under glass. The construction and care of a hot-bed do not require any particular skill, yet the operation of the bed will acquaint the one in charge with many details as little incidents arise. Ventilation and watering are the two operations requiring the most attention, yet with a knowledge of plant life, and the use of good judgment, the result should be satisfactory. In one sense of the word there is nothing difficult about hot-bed work, but the results above a certain standard are often in proportion to the experience and judgment of the one in charge. Farmers usually have everything required for a hot-bed at their disposal. A few hours' work about the first of March would make a great improvement in the garden, especially as regards the earliness of the vegetables and produce grown.

The hot-bed should be placed in a position exposed as much as possible to the sun's rays, and protected from cold winds. The bed should be handy, for during part of the time it is in use it will require considerable attention. On the south side of a high board fence or building is a suitable place to construct the hot-bed.

Hot-beds used under farm conditions are usually heated by the fermentation of manure. And for this purpose fresh horse manure is used. To prepare it, it is well to make a cone-shaped pile of fresh horse manure, containing some straw. This should be thrown together loosely, and allowed to remain for four or five days. In that