for winter feeding. In net profit one acre of orchard is equal to at least 12 acres of oats. The soil, however, is not ideal for the latter. It is a sandy loam, with gravel bottom, and easily cultivated. The twelve acres of apples average about $1,000 a year after paying all expenses. This year it will be more.

PAYS TO THIN ON TREES.

"After investigating the merits of hand thinning apples on the trees, I have concluded that it is a very advisable part of orchard practice. In 1907 I went over about 80 trees. There was a noticeable improvement in the quality of the fruit. On trees not thinned there was 15 per cent. or more number two, while on the trees gone over, seven per cent. or less went second grade. Last summer I thinned the whole orchard. Some were not heavily laden, and little thinning was necessary. Out of a total pack of 880 barrels, made up of Baldwins, Spies, Greenings, Tolman Sweets, and a few of other kinds, only 73 barrels graded seconds. In 68 barrels of Greenings, only two were second grade. Orchards in the district where no thinning was done scarcely had a percentage equal to 73 out of 880 that would grade number 1.

"The cost of thinning is not excessive. When trees are heavily fruited and many varieties are grown it might total more. Last season five cents per barrel of fruit harvested would cover all the labor entailed in thinning. Then it cost 20 cents per barrel to pick and pack, thus making the total cost of harvesting 25 cents per barrel. Picking and packing can be done much more expeditiously when the fruit has been thinned soon after it is formed. I have to pay for taking the fruit off the trees in any event, and I prefer to take off some in the early summer and let it drop to the ground. The result is fewer apples in number to handle in the fall, and a great saving in time taken to grade. Thus thinning on the trees saves in picking, grading and packing, giving a superior article when prepared for the market at a cost not exceeding that commonly entailed in harvesting apples.

"I am greatly in favor of organization. It would be one of the grandest things possible if we could have such associations as the one which has done so much for fruit-growing in Norfolk County in all parts of the Province."

Replacing Trees.

A Northumberland County, Ont., apple-grower, after repeated, unsuccessful attempts to replace orchard trees that had died, with young stock, found that the difficulty could be overcome by putting the ground in proper condition. In brief, his plan is to burn the roots and trunk of the old tree on the spot, leaving the ashes. He then digs out a large hole, several feet across each way, in the autumn, and fills it with good barnyard manure, replacing the top soil and ashes. The heap being left exposed to the rains and snows of fall and winter, the site by spring will become thoroughly enriched with the heavy mulch and transformed to a mould. Before the new tree is set, any coarser or strawy portion left in the mass is carefully shaken out and removed, leaving a fine, rich receptacle, in which moisture will be retained and plant food supplied through the rootlets of the young tree. Since adopting this plan, failure in re-setting has been a rare occurrence.

POULTRY.

A Farmer's Experience with Poultry.

Editor "The Farmer's Advocate":

Your letter has just come to hand, requesting an article on poultry, which I am pleased to forward, although I cannot give figures of cost in keeping my stock the year round, as I am away during the winter months. Had been working on the Institute staff in Ontario for seven years prior to my winter engagements at Pennsylvania State College, 1907-08, as special instructor on poultry. Twelve years ago, after reading many articles written by experienced people (in your valuable paper) on poultry, I became enthused, and started in the business in a small way. I saw at that time there was likely to be a big demand for a suitable class of dressed poultry for the English market. After reading Prof. Robertson's report on that trade, I found they preferred a white-fleshed fowl. I had heard of the Buff Orpington as being a most popular fowl in England at that time, combining all the requirements as a general-purpose bird, and having white legs and flesh, which our English friends so much admire. I at once imported six females and one male, costing $125, and was among the first to introduce this breed into Canada. Two years after I had a good-sized flock. With care, I had selected birds of the proper meat type. I then commenced crate-fattening them for the market, paying special attention to the best methods advocated for fattening. I was able, in a short time, to raise and fatten birds that won the sweepstakes at the Winter Fair, Guelph, in dressed poultry. Although working a large farm of nearly 200 acres, I raised several hundred fowls each year, and bought from my neighbors several hundred, and fattened them in crates, doubling my money on the investment. I was then able to build more extensive poultry buildings, having had a few years' experience in the business, and feeling confident I could make a success of it. Many failures have been made by those who had little or no experience, and invested considerable money in buildings and equipments. It is a much safer policy to commence with a few, and gradually increase your flock as you profit by mistakes.

After I had got well established, I commenced exhibiting at the shows, and advertising eggs and stock, and, by dealing honestly with the public, my business developed year by year. Last year my orders for eggs alone for hatching amounted to about $700, from 150 layers. I raise about 400 young stock each year, and sell $800 worth of these for breeding purposes, and market the culls. I have no trouble in securing from $5 to $25 each for the bulk of breeders, many of my best shipments going to the United States. This merely shows what can be accomplished as a side line in poultry, where special care is given to it.

BUILDINGS FOR POULTRY.

Mistakes are frequently made in putting up expensive buildings; moderately cheap ones answer just as well. Before any profit is realized on poultry, they have first to pay for the food they consume, then the interest on the money in buildings, and a sinking fund for wear and tear on equipment. Where a lot of money is put in a plant, the profits are much smaller at the end of the year.

Permanent Poultry House.

Shed-roof plan, showing yards in front. On farm of J. W. Clark, Brant Co., Ontario.

The most essential things in a poultry house are fresh air and sunshine. These are the best and cheapest known agencies in destroying disease germs. No poultry is profitable if unhealthy. Many people have the idea that hens must be kept very warm in winter to produce eggs. Accordingly, they keep the henhouse closed up tight day and night to prevent any cold air entering. Dampness soon forms on the interior of the building, which creates a breeding-ground for germs. Poultry, after being kept in a building of this kind for some time, and then allowed to go out in the cold air, catch cold very quickly, which will soon develop that dread disease, roup, which, if not checked, will soon spread through the flock, causing an endless amount of trouble.

Fowl will stand considerable cold if they are hardened to it gradually. When the nights begin to get cold in the fall, do not close the windows, unless there is a direct draft on the birds. All well-arranged houses will be so constructed as to prevent this. If chickens are in good health, zero weather inside the house will not materially affect the egg yield, or the combs of the male birds. I have on several occasions noticed this most strikingly, having sometimes purchased a bird from a pen where they were kept warm, and placed them in my pens alongside of birds that were hardened to cooler conditions; the comb of the bird introduced would freeze, while the others were not affected in the slightest. From my experience, a poultry house built on the shed-roof plan gives best results, more especially during the winter months. A house 12 feet wide, 4½ feet at rear, and 8 feet at front, with windows in front running close up to roof, will permit the sun to shine all over the interior of the building during the day, making the house warmer and more cheerful for the fowl. The sun is low in the heavens during winter months, and will reach to the rear part quite easily if the windows are arranged properly. A house of this kind should be built, not to exceed in cost of construction over $2.00 per running foot. After the frame is up, cheap lumber can be used to cover it, covering this with one or two thicknesses of tar paper, and three-ply roofing paper for the roof. One-ply can be used for the sides, or cull shingles, where they can be procured. A permanent house of this style should be placed on a cement wall 8 inches thick. The wall should be 6 inches above ground. A trench should be dug 15 inches deep, and 8 or 10 inches of stone or brick-bats placed in bottom, to drain the water off, thus preventing any from entering the inside of the building. If the ground on which the building is placed is hard and dry, no floor is required; if soft, the fowl will soon dig holes in it. In this case, I would put in a cement floor. This can be done at small cost where soft-coal cinders can be procured; they make one of the driest floors for a poultry house. Place about 5 or 6 inches over the floor, and tamp down tight, then put on 1½ inches sand and cement, 1 cement to 3 sand. This will make a floor sufficiently strong for poultry. It is easily kept clean, and is rat-proof. Where fowl are confined to a limited area, the building should be located so that runs can be made on both sides. This will give the runs a chance to grow green food for the hens during the summer, if they are changed from one side to the other every few weeks. The dropping-boards, perches and nests should be arranged at the rear part of the house, leaving the entire floor space for a scratching place, which should be covered with four or five inches of straw. A frame covered with muslin should be hinged at top of window, to open inside. This can be hooked at top of ceiling when not in use. On very cold, windy or stormy days the curtain should be down.

In sections of the Province where the thermometer drops from 10 to 20 degrees below zero, it is advisable to have a window to slide over the opening, in place of the curtain, during the night. Inch-mesh wire netting should be put on a frame, which is hinged to side of window. This, when closed, will keep out sparrows, which usually hover around poultry houses.

In addition to my permanent houses, I am using several colony houses for wintering hens, with equal results in egg production. These are built on much the same plan, with the exception that they are placed on runners. They are built 7 x 8 ft., 4½ ft. at rear, 7 ft. at front; 12 hens and one male to a house. The only objection to this plan is the extra labor in caring for them. Where this is not considered, the colony house has many things to commend it. It can be moved from place to place, used for rearing young stock, etc.

EGG PRODUCTION.

In producing eggs in winter, much depends on the stock, housing, feeding and attention given. An ideal hen for winter-egg production is a pullet that is mature by November 1st; one that is strong and vigorous, and of good laying strain. Some breeds are better layers than others, but more depends on the strain of the breed, as we often find good and poor layers in all breeds. To get pullets of our general-purpose breeds matured by Nov. 1st, it is necessary to hatch in April in some years. May chicks mature quickly, and commence laying about Dec. 1st. Good-laying hens that have moulted early are likely layers, if not too old. The practice of forcing moult is advocated by some, but in the writer's experience this has not always proven a success. If a hen is forced to stop laying by this method, it is often difficult to get her at it again. If good layers are fed properly, they will usually continue egg production pretty well through the moult. I have often found that the very best layers moulted late in the season.

Hens over two years of age are seldom profitable layers. Leghorns, Minorcas, etc., are sometimes good for a longer period; old hens of the heavier breeds usually become excessively fat. For summer egg production, the lighter breeds, and later-hatched pullets of the heavier breeds, are best.

FEEDING.

The main points to be considered in winter