EFFICIENT FARMING

WHERE PREVENTION COUNTS.

Plant diseases are controlled by prevention rather than by cure. Once an apple has become scabby, a cherry begun to rot, or a peach leaf show signs of the curl, it is then too late to apply any control. The damage done by these and all other plant diseases is avoided by preventing the disease from ever becoming established. Spraying is the most generally used method of prevention. The success of a spray application depends upon the chances at that particular time of killing the disease organisms, and so preventing any infection.

For control of peach leaf curl it is essential to spray with lime sulphur while the trees are in a perfectly dormant stage, before the buds have even begun to unfold in the spring. All studies of the life history of the fungus indicates that the spores of the fungus pass the winter adhering to the bud scales and in the spring these spores germinate and attack the leaves as the bud is opening. As long as the young leaves are folded inside the bud and protected by its scales they are safe from the attack of the fungus, but as soon as the bud begins to open, the tender leaves become exposed to infection. It is therefore essential that the fungus spores be killed by the spray while the buds are still dormant. It follows that spraying can be done at any time during late fall, winter or early spring.

All peach growers have noticed that the disease is much more prevalent after a cold, wet spring. In such a season on account of the slow rate of growth the buds are a long time unfolding; while dampness favors the germination of the fungus spores, and low temperature does not check their growth. Thus the fungus is favored and has a considerable period of time in which it has every chance to infect the leaves. If the weather is warm and dry while the buds are opening we have the reverse conditions; the leaves shoot out quickly and are soon past the danger period, while at the same time, lack of moisture may prevent germination of the fungus spores.

A BRIEF COMPARISON OF SOME SILAGES.

At the Central Experimental Farm, comparisons of the feeding value of the three silages—oats, peas and vetch, sunflower, and corn, showed the cost of production of these stored in the silo to be $5.60, $1.80 and $2.95 per ton, respectively.

In the first part of the experiment, corn silage produced 4 per cent. more milk at 13.5 per cent. less cost and 37 per cent. more fat at 12 per cent. less cost than did the O.P.V. silage. In the second part of the experiment, corn silage produced 5 per cent. more milk and 3.8 per cent. more fat than the sunflower, but the latter produced both milk and fat a little cheaper. Taking the corn silage as a standard, and valuing it at the cost of production, the relative values of O.P.V. silage and sunflower silage were $2.88 and $2.76 per ton, respectively. The high cost of production of the O.P.V. silage is due to the low yield per acre. In the case of the sunflower silage, the cost is low, due to the high yield, but a large percentage of this extra yield is water. Calculated on the basis of the dry matter, corn and sunflower silage would cost about the same. Sunflower silage, with its excess water, freezes badly in winter, a very undesirable thing, while O.P.V. silage freezes little, if any, making it easy to handle. Neither O.P.V. silage nor sunflower silage are as palatable as corn silage, but the cattle ate both, once they became used to them. Corn silage still holds premier place, having the most advantages and the fewest disadvantages, but sunflower silage and O.P.V. silage are economical feeds where corn silage can not be grown. —Geo. W. Muir, Animal Husbandman, Central Experimental Farm.

CONCERNING FIELD ROOT VARIETIES.

Now that the season is past for the harvesting of our field root crops a consideration of what the harvest has brought us should be profitable. At the Central Experimental Farm at Ottawa we have for the past few years been considering not only the total yield of green weight obtained but the amount of dry matter and the genuineness of the variety as well. The consideration of genuineness is what we wish to consider briefly at the present time.

In our attempts to classify field root varieties we have met with some very peculiar mixtures that were sold under special, sometimes fancy, variety names. A year ago we received a package of seed supposed to be of a Yellow Intermediate variety but which produced at least one-half small round garden beets. This year we had a variety which gave us one-half Swiss Chard. In both of these cases the mixtures were obviously due to the mechanical mixing of varieties in some warehouse, due very likely to carelessness on the part of those handling the seed. Whatever the cause of the mixing the fact remains that a farmer buying such seed would suffer a considerable loss—and it would seem only fair that there should be some means by which growers who receive such seed could get recompensed for the loss sustained because of sowing it.

A much more general condition than the one previously mentioned is the occurrence of off types in any established variety. Just how serious such a mixture is from the standpoint of yield of the resulting crop is dependent on the character of the off type individuals present. Plants which are off type in color only do not usually mean a reduction in yield, but plants off shape very frequently do. A single example will serve to illustrate this point. In a lot of half sugar mangels grown at the Central Experimental Farm this summer there occurred about thirty per cent., of off shapes and sizes. The half sugar types and the off types were weighed separately and the decrease in yield due to the off types figured on an acre basis, amounted to a little over five tons. There is a special adaptation of type or root to soil and climatic conditions, as for example the Globe or Tankard types of mangels for shallow soils, the Half Long or Long types for very deep open soils, etc. The presence of types, not suited to the soil type in which they are grown, in a variety suited to the soil in question will almost always result in an appreciable loss due to decreased yield.

We may have, however, a lot of roots true to variety name and type, and still giving us a very inferior yield because of weak germination of the seed from which they grew. In common with animals a poor start very often means an ultimate development much below normal. It is very essential therefore to have vigor of germination as well as purity of the resulting crop if we are to obtain maximum yields.

What we wish to emphasize is that some root seed sold to the farmers of Canada at the present time is a disgrace to the seed trade, and a serious loss to the growers unfortunate enough to buy it. We wish at the same time to call attention to the fact that there is reasonably good root seed available and being sold by some of our seedsmen. Some way of regulating our root seed trade so that all of our seedsmen would sell only good seed would seem to be in order.

The Lady—"I always like the Cattle Show, dear. It's the only time I feel really alim."—From London Opinion.

Poultry

When its leg is bent the fowl can not open its foot, for which reason the fowl can not fall off the perch.

The word "chicken" is commonly applied to fowls of all ages. Properly, a chicken is a young fowl six months old; it becomes a fowl after that.

Hens are never so happy as when they are knee-deep in straw or chaff, scratching for kernels of grain. This happiness is what makes them profitable, too.

Olive oil is one of the best medicines known for diarrohea. It can also be regarded as a substitute for simple ointments, and can be rubbed around the eyes instead of using an ointment.

Crossing breeds leads on to mongrelism, and the oftener the cross is made the lower the quality gets. Get a good breed and stick to it, is the advice of those who have made a success.

When a fowl sneezes, waters slightly at the eyes and nostrils, and the face puffs up, this indicates a common cold. When accompanied by a rattling in the throat, the trouble is bronchitis. Difficult breathing indicates pneumonia. Canker in the mouth means diphtheria.

Beef scrap commonly appears in two forms—granulated and ground. The ground scrap is preferred, since it may be fed either in hoppers or mixed with a mash food. Fowls will eat a ground scrap from the hopper readily enough and are not so likely to hog it as they would the coarser scrap.

Sour crop is occasionally found among fowls. When a fowl with a sour crop is picked up, the crop feels soft and the fowl will vomit a quantity of fluid. For this condition there is no better remedy than two teaspoonfuls of sugar and baking-soda (equal parts), in a teacupful of warm water. Give two teaspoonfuls of this once a day, and at the same time supply plenty of grit.

What the Live Stock Market Suggests.

A recent Dominion Market Intelligence report issued from Ottawa contains some suggestive information as to conditions at the leading live stock marketing centres, from which the following are quotations:

Toronto: Trading on the cattle market was dull. There was excessive supply of thin unfinished cattle and buyers showed marked dislike for it. Docked and castrated lambs invariably topped the market.

Montreal: Packers, under the run of mostly inferior cattle, were not inclined to buy. Like begets like; use quality sires.

Winnipeg: There was a fairly broad enquiry for good feeding steers. Inferior kinds were dull and weak. Common horned, off-color stockers and feeders were a drag on the market. Percentage of select bacon hogs very small; a heavy run of unfinished hogs were mostly returned to the country for feeding purposes.

Edmonton: All good cattle, especially good feeders and good butcher steers, sold readily at fair prices.

From Markets Intelligence office: Dehorn your cattle. Live stock bruisers are money losers. The markets are short on good quality steers. Winter feed for spring markets. The winter feeding of lambs is profitable. Docked and castrated lambs top the market. Winter feeding is the strength of the live stock industry. Spring markets are generally bullish. Finish is an essential to profitable sale.

Cost of Maintenance of Swine.

In investigational work with swine, conducted by the Department of Animal Husbandry at the Ontario Agricultural College, it was found that in wintering brood sows on a narrow, nutritive ration produced largely from concentrated feeds, the cost was 15 cents per day for mature sows, whereas with groups using more roughage the cost was reduced to eight and nine cents per day.

An extensive experiment with commercial hog feeds versus home-grown feeds showed that under average farm conditions none of the commercial hog feeds used was as economical as a well-balanced mixture produced on the farm.

Let it be said again that boys and girls seek joy, satisfaction and responsibility. The parent who is wise enough to see that his children get these things, either through his own initiative or through the boys' and girls' club, will have little trouble in maintaining their interest in the farm.

Butter and Cheese Scoring Contests.

In the Dominion educational butter scoring contest of 1923, conducted by the Dairy and Cold Storage Branch from May to October inclusive, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, and Nova Scotia each entered six samples. British Columbia and New Brunswick each five, and Alberta three. All the samples from Manitoba and Nova Scotia were special grade. The other special grade samples were five from Saskatchewan and Quebec, four from Alberta and Ontario, three from New Brunswick, two from British Columbia, and one from Prince Edward Island. All the other samples were first grade except one from Quebec and Prince Edward Island, which were second. The special grades were 23.40 per cent. more than in 1922, showing, says the report, that the creamery butter-makers in Canada are improving in their methods.

In the educational cheese scoring contest, Ontario contributed 22 samples of which four were special grade, 17 first grade and one second grade. Of 21 samples from Quebec nine were special grade, nine first grade and three second grade. Of four samples from Prince Edward Island all were first grade. Of six from New Brunswick four were first grade and two second, and of three from Alberta one was first grade and two second grade. Only the provinces named competed in cheese.

Cultivation of Tobacco.

The extent of the work carried on at the Dominion tobacco station at Harrow, Ont., is little known and less realized. A good idea, however, can be gathered from the report for last year of the Superintendent, Mr. D. D. Digges. Besides producing enough plants of all varieties to meet the requirements of the station and the various outside experimental plots, 165,600 plants were sold, sufficient approximately to plant 36.8 acres. Three thousand square feet of glass covered beds and 1,200 square feet of convas covered different types that were seeded. Two cold beds, two semi-hot beds, all glass covered, and one each semi-hot bed and cold bed, canvas covered, were used. Both of the last mentioned were spring steamed but one each of the others was spring steamed and one each fall steamed. All beds had a top dressing of about three inches of well rotted compost. The treatment practiced under these conditions are fully set out in the report and the conclusions arrived at briefly put are: that the semi-hot bed is the most economical and efficient type of bed; that the glass-covered semi-hot bed is the best for the production of early seedlings; that by using straw the semi-hot bed can be made and steamed in the fall without losing its effectiveness; that glass-covered beds are superior to canvas covered for the production of early seedlings; that a top dressing of black compost is beneficial; that sterilizing with steam not only eradicates weeds and plant diseases but also forces growth of the plants; that steaming for thirty minutes at 100 pounds pressure is sufficient; that fall steaming is a safeguard against late springs; that on a fairly fertile soil which is well supplied with humus a weak solution of nitrate of soda applied when the leaves are about the size of the small Canadian nickle is sufficient for forcing retarded plants but the latter should be sprinkled with pure water immediately after using the solution; that the rate of seeding, and the manner thereof, should be governed by the germinative power of the seed.

For the Languid Vise.

After a period of service the average vise wears to the extent of requiring the movable jaw to be pulled out by hand when the vise is opened by the insertion of any piece of work. A simple remedy to correct this, as adopted by a local shop, consists in the insertion of a valve spring between the fixed and movable jaws.

Watch the bone and it will be less difficult to make the calf into a worthwhile dairy cow.

Short Courses at Ontario Agricultural College

FARM POWER COURSE.

Farm tractors for outdoor work, and gasoline engines and electric motors for inside are very rapidly finding favor on the farms of Ontario. For the large number of tractors introduced during the past few years it has been very difficult to find skilled operators and especially operators with a thorough grasp of the fundamental principles underlying the construction and operation of gasoline engines. Many inquiries are received at the Ontario Agricultural College day by day from those wishing information about motors of various types used for inside work.

To afford an opportunity for instruction along these various lines there is offered a short course in Farm Power at the Ontario Agricultural College, beginning January 22nd and extending over a period of two weeks. Amateurs, being either operators, farmers or farmers' sons are particularly invited. Any man or boy may enter the course providing he arrives at the Mechanic's Building, O.A.C., at 9 a.m. on the 22nd of January.

FARM DAIRY COURSE.

The importance and value of a knowledge of modern dairy farm practice will be demonstrated during the Farm Dairy Course—January 21st to February 2nd—at the Dairy Department of the Ontario Agricultural College. The work covered will include lectures on the care and handling of dairy cattle, the production and care of milk, veterinary science, crops for the dairy farm, systems of ventilation in dairy barns and the care and use of milking machines, along with practical work in hand separators, butter-making, soft and fancy cheese making and milk testing. No young dairy farmer can afford to be without a course of this kind. If students are unable to remain the full period of two weeks, they may stay one week or less.

FRUIT AND VEGETABLE GROWING.

The culture of tree and small fruits for both amateur and commercial growers in all parts of the Province will be covered in the short course on Fruit and Vegetable Growing given by the Department of Horticulture, Ontario Agricultural College, January 21st to February 2nd. The course will be as practical as possible. The best methods used in vegetable growing will also be given in detail. The practical work of fruit growing will consist of budding, grafting, pruning, planting, packing and marketing the fruit and market packages; in vegetables, seedage, cuttage, picking out, potting, transplanting, marketing and market packages.

The Sunday School Lesson

JANUARY 20

Moses Called to Deliver Israel, Exod. chs. 1: 1 to 12: 36

Golden Text—By faith Moses, when he was come to years, refused to be called the son of Pharaoh's daughter; Choosing rather to suffer affliction with the people of God, than to enjoy the pleasures of sin for a season.—Heb. 11: 24, 25.

THE STORY CONTINUED—The story of Moses, his deliverance from death in infancy, his education at the Egyptian court, his interference on behalf of his oppressed countrymen, his flight to Midian, and his return to be the deliverer of Israel from Egyptian bondage and the founder of their national life, is one of the most remarkable in history, and not less remarkable for its religious value than for its historical importance. God's ever-ruling providence, his call, his leading, his manifested presence, his interest in the national life and his moral law, stand out as shining lights in the record, and the saving of Israel from Egypt came to be regarded in the later centuries as the sign of God's regard for his people, and the assurance of his saving grace and power in every subsequent time of oppression or suffering.

Ch. 3: 1. *Moses kept the flock.* Like his ancestors, he was a shepherd. The wealth of Jethro, the Arabian chief, his father-in-law, consisted in his flocks. Moses, having married Jethro's daughter (2: 21-22), had been adopted as a member of the tribe and shared that wealth. Jethro is called Reuel in ch. 2: 18. *The back of the wilderness* (Rev. Ver.) was the western part. The home of these Midianite Arabs appears to have been on the eastern side of the Gulf of Akaba, the northeastern arm of the Red Sea, but there may have been a section of the tribe whose pasture lands were in the peninsula of Sinai between the gulfs of Akaba and Suez. A well-known traveler tells us that in the hot, dry summer weather the Arab shepherds are accustomed "to leave the lower country, where the herbage is dried up, and retire towards the higher parts, where the pasture preserves its freshness much longer." *The mountain of God*, which is called Horeb, and in other places Sinai, was evidently regarded as a sacred place. There may have been an altar there. An ancient tradition locates the mountain in the heart of the Sinaitic peninsula.

V. 2. *The angel of the Lord;* in the oldest stories, is the manifestation of God himself. God is represented as appearing in human form, and here *in a flame of fire out of the midst of a bush.* Moses sees at first the marvel of the flaming bush, and when he draws nearer becomes conscious that he is in the presence of God and on holy ground. The story no doubt represents, in this picturesque form, a profound religious experience and the climax of a long series of communings with God and his own conscience. It is now made clear to him that his duty lies with his suffering kinsmen in Egypt, and that he must go back to them.

V. 5. *Put off thy shoes.* The putting off of the shoes, or sandals, is still the usual mark of reverence in the East, upon entering a mosque or other holy place.

V. 6. *The God of thy father.* In those days when people recognized and worshipped many gods, a new revelation, or a new divine name, might have meant a new god. Moses is assured that it is Israel's true God, the God of his fathers, who is thus speaking to him. Neither he, nor the people he is sent to deliver, must have any misunderstanding regarding that.

V. 7. *I have surely seen.* Moses is made to see that the affliction of the people is a matter of concern to God and so must be to God's servant. Moses cannot remain indifferent. God has chosen him as his instrument of deliverance, and sets before him the promise of restoration to the land for which his fathers had come—the land of Canaan.

V. 8. *Milk and honey;* in Arabia would be marks of a good and rich land. The word which is translated "honey" is used also for a sweet syrup made from grape juice and called by the Arabs *"dibs." The Canaanites;* were the lowlanders of the sea-coast and the Jordan valley, but the name was often applied to all the people of Palestine before the Israelite conquest. *The Hittites;* represented a great nation of those days whose settlements extended from Palestine north to Syria and Asia Minor. *The Amorites;* lived east of the river Jordan, and also in the extreme north of Palestine. This name also was sometimes applied to the people of western Palestine in general. The other names represent Palestine tribes of which little is known.

V. 12. *Certainly I will be with thee.* The task to which Moses is called is a great and difficult one. He feels his incompetence. *"Who am I,"* he said, *"That I should go unto Pharaoh?"* The answer of God gives him the great assurance of God's presence with him. In all Moses' subsequent work this promise and this assurance remained with him. God was present with him and in that assurance he could do all things. *Upon this mountain.* There was this further token and guarantee of the reality and truth of the divine call, that he would lead the people to this very mountain where now he had the vision of God. This may account, in part at least, for the fact that Moses did lead Israel into the heart of that mountainous peninsula rather than by the straight road to Palestine.

APPLICATION.

Interest. Again we study the case of a man called of God. And like Abraham, Moses is past the age of youthful adventure. His apprenticeship for his real life work involved forty years of youth amid the advantages of the court of Egypt, plus an added forty earning an honest livelihood, as a keeper of flocks in the wilderness. So, too, many a modern college man finds scope for all his training in the varied pursuits of husbandry. Slipshod farming spells poverty amid to-day's highly specialized industry. But just as truly does scientific farming yield not only the secrets of high-revenue crops, but life on a high scale of comfort, and thrilling with vital contact points with the mystery, power and beauty of the out-of-door world. To the trained man,

Earth's crammed with heaven,
And every common bush afire with God;
And only he who sees takes off his shoes.

But the man of trained vision cannot be buried in the desert. Busy with his common daily task as Moses was, memory, vision, imagination, and insight all play their part in the revealing of the splendid vision of God and duty. So for Amos the farmer, David the shepherd, Paul the tentmaker, Peter the fisherman, Jesus the carpenter, and to all who tread the path of labor in like spirit, "the trivial round, the common task," becomes the road to God, and all the commonplace. "Blessed are the pure in heart: for they shall see God."

2. *Reverence.* Scientific interest in a physical phenomenon was the beginning of the re-awakening of the soul. Curiosity soon deepens into reverence. He who comes to scoff may remain to pray, but not usually. It is he who comes seeking new truth who presently is overwhelmed with it. Eminent scholarship, ripe experience, well informed authority, or worthy achievement, are never cocksure or flippant. It is the immaturity of youth, the lightmindedness of shallow and frivolous living that misses the sunset, and defaces the coin, and degrades the flag, and discards the Bible, and wastes the Sabbath, and scorns the church and calls patient, toiling, breadwinning, self-sacrificing father "the old man." Our flapper age is short on reverences. Unless there are some days, and some persons and some institutions, and some names, held inviolably sacred, we drift quickly to the point where even life itself is neither sacred nor safe.

3. *Humility.* Who am I? Moses may well raise the question. To begin with he is an exile. He is a shepherd eighty years old. He has been absent from the magnificent court forty years. He fled under fear of sentence of death. The task is stupendous. A whole people is in slavery. They are held by the greatest power in the ancient world. Lincoln in like case was driven to his knees because as he said there was nowhere else to go. So Britain's premier, when faced with his appalling responsibilities remarked: "I need your prayers rather than your congratulations." Such humility is a first character essential for the human agency that is to become a conductor of divine dynamic.

Care of Paint and Paint Brushes.

When it is necessary to store an opened pail of paint indefinitely, and the cover has been cut away, the paint naturally becomes hardened and useless from exposure to the air. This may be prevented easily and at a trifling expense by pouring melted paraffin over the surface of the paint. The can will be hermetically sealed as soon as the wax has cooled and the paint will be preserved. Paraffin is usually kept on hand in the kitchen for sealing jars and waxing sad-irons, and a single bar of the wax, costing about three cents, will be sufficient to seal the paint in two one-gallon cans.

If nothing is at hand with which to cleanse a brush when a job of painting has been completed, the bristles may be kept in good shape by wiping them as dry as possible and dipping the brush into melted paraffin to the depth of the ferrule. To insure ease in the removal of the wax when the brush is to be used again, the bristles should be pressed firmly together so as to prevent the wax from flowing between. The paraffin, when cool, can be picked from the bristles very easily, or it may be dipped for a few moments into boiling water, and the brush will be as serviceable as ever.

Brushes that have been neglected until the paint is hard and dry can be softened again by soaking them in strong vinegar.

An Automatic Rat Trap.

After the corn crop was sold rats from the granary began to infest the basement. They were so thick that some wholesale method to exterminate them was the only solution. There was an old vinegar barrel in the basement. The top of this was removed and covered with heavy brown paper. Several small pieces of cheese and a few kernels of corn were scattered on the top and the barrel set about six inches from a table so that the rats would have to jump to get to the bait.

Each morning the bait was gone. When the rats began to suspect that the food supply was both regular and safe, the paper was cut with a sharp knife in the form of a cross with the intersecting cuts in the centre. This time the food was glued to the paper.

The next morning nine rats were found in the barrel. Subsequent mornings netted from one to three or four for about a week.

The sun-blessed dairy cow brings forth vitamines a hundred fold.