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WIGLEYS
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DYES NEW AGAIN**

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Diamond Dyes

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TS Co. Limited
WINNIPEG
CALGARY

EFFICIENT FARMING

OPERATING AN INCUBATOR.
Given a suitable room, the first thing is to clean the machine before and after every hatch. Brush the machine clean, wash it out with hot water, then spray or wash it with a disinfectant. The next operation is to set the machine level. The thermometer must be accurate, and to assure accuracy it should be tested at least once, or better, twice during the year. The temperature given is usually one hundred and three degrees Fahrenheit throughout the hatch. Our experience has been that it is better to take an objective of one hundred and one or one hundred and two degrees, and if the machine creeps to one hundred and three degrees we have no cause for worry; but given a temperature of one hundred and three degrees, when the machine goes up to one hundred and four or above, usually either the hatch is small or the chicks hatched are hard to rear. Low temperatures are not so fatal as are high temperatures.

The amount of moisture required in an incubator depends upon the make and the room. Generally it is best to follow the manufacturer's directions. Hatching by the Natural Method. Setting the hen—It is generally agreed that, in order to secure a good hatch, the hen must be placed where other hens are not likely to disturb her; for, as a rule, we seldom get good hatches when other hens lay in the nest with the sitter. Some farmers do not set a hen until one becomes broody on a nest where no others lay, which often necessitates late chicks. The difficulty can be overcome by making a new nest for the broody hen. A box about twelve inches square and six inches deep; some earth, or an overturned sod in the bottom, with care to have the corners very full so that no eggs can roll out from the hen and get chilled; next, about two inches of straw or chaff, and then a few earthen eggs put into the nest. The nest should be placed in some place where nothing can disturb the hen, and put her on after dark. Feed and water must be within easy reach, and a dust bath should also be convenient. If the hen is sitting quiet the next day, you will be safe in putting the eggs under her. In our experience we get ninety per cent. of the hens to sit by following this method.

It should be remembered that the hen will be in better condition if dusted with insect powder when set, and also a few days before the hatch comes off. This will usually keep the lice in check, especially if some tansy or mint leaves are used in making the nest.

Selection of Eggs.
Select for color, size and shape, the kind of eggs you want for market. Continuous selection, year after year, will give results. Do not select dirty eggs, nor do not handle eggs unless your hands are clean. The shell is porous, hence there is possible contamination. Eggs deteriorate in hatching quality with age. When you hold eggs for hatching keep them in a cool place about fifty to sixty degrees Fahrenheit. Be sure the place is clean and not musty. Eggs for hatching should be kept not longer than ten days. The eggs from late hatched pullets,

or immature birds, seldom hatch as well as eggs from mature birds. Our best hatching eggs have been produced from early hatched pullets that laid well in the early winter and then went through a partial moult. The pullets hatched in early February have, the following spring, produced remarkably good eggs for hatching. Heavy breed pullets hatched in May have produced the poorest hatching eggs.

Eggs from birds out of condition, whether from feeding, housing, or management, produce eggs difficult to hatch. It is also true that the hatching power of eggs in a day or two will vary, the cause of which at times is difficult to locate.

POTATO INSPECTION AND CERTIFICATION.

Although potato inspection and certification has rapidly increased in scope and usefulness since its inception in Canada in 1915, there are naturally many potato growers throughout the country to whose attention it has not yet been drawn. It is therefore desired at this time briefly to enumerate the aims of the work and the methods followed, in order that all growers interested in the production of seed potatoes reasonably free from disease may be kept informed with regard to this phase of agricultural activity and, if they desire to do so, make application for an inspection of their fields during the coming season.

The aims of the above work are:

- (1) To encourage the greater production of seed potatoes free from disease.
- (2) To make known to the growers the various diseases affecting potatoes, their economic importance, and accepted methods for their control.
- (3) To recommend to the growers, in the event of a change of seed being found necessary, sources of disease-free seed potatoes, thus gradually eliminating undesirable stock.
- (4) To assist the growers whose stock upon inspection is found to measure up to the standards set, in securing favorable prices for their seed, by the issuance of official certificates vouching for its quality.

The methods applied in carrying out inspection and certification of potatoes are as follows:

- (a) The fields are inspected at blossoming time, and again about a month subsequently, in order to ascertain what diseases (if any) affecting the growing plants, are present.
- (b) Failure of any fields to measure up to the standards set for these two inspections disqualifies them for any further consideration for seed purposes.
- (c) The crops of fields which pass the two field inspections are inspected at harvest time, or subsequently, and if found reasonably free from disease affecting the tubers, are passed as worthy of certification as Extra No. 1 seed potatoes.
- (d) A final inspection is made—if so requested by the grower—of all such crops when sold, and a certification tag attached by the inspector to every bag at the time of shipment. These tags are issued by the Dominion Department of Agriculture and all bear the official seal of the Plant Disease Inspection Service. This seal ensures the validity of any tag upon which it appears, and should be looked for by all purchasers desiring to secure bona-fide Extra No. 1 certified seed potatoes.

All growers of potatoes intended for seed purposes, who have not yet received a practical demonstration of the work and who desire to have their fields inspected during 1923 are urged to communicate with the Dominion Botanist, Central Experimental Farm, Ottawa, as early in the season as possible in order that arrangements may be made in good time to meet their requirements.

Advancement in Butter Making.
Results in 1923 of the butter-scoring contest conducted for the past five years by the Dominion Dairy and Cold Storage Branch, from May to October in each year, show that butter-making in Canada has greatly improved. The scoring by the provinces was very close, ranging from 53.68 by Ontario to 54.85 by Quebec out of 55 possible points. Manitoba tied for second place with Nova Scotia, with 54.80 each; British Columbia was fourth with 54.68; New Brunswick fifth with 54.50; Prince Edward Island sixth with 54.46; Saskatchewan seventh with 54.38, and Alberta eighth with 54.25.

No use to go down in the back lot and holler about the good things you have to sell. Get out there men will hear you. Put it in the paper.

Southern Italy exported last year \$11,800,000 worth of almonds. In that country certain varieties are picked green and eaten as fruit. The husk is removed and the soft green shell and kernel are eaten with salt.

Starting Plants Indoors.
Plants may easily be started in the house by using a "box" or an old soap box. The box should be three or four inches deep, should have holes in the bottom to permit drainage, and should be small enough so that it can easily be handled when filled with soil.

Fill the box to within one-half inch of the top with fine loam, then firm the soil and have it perfectly level and free from stones, sticks or lumps before seed planting. Mark the rows with a straight stick that is as long as the box is wide, making the rows about one-fourth of an inch deep and two inches apart.

The seed should be covered very lightly, and they should not be over-watered, as that causes weak plants. Place the box near a window, preferably on the south side of the house, and turn the box every two or three days so that plants will get equal amounts of sunlight from all sides.

The time of planting the seeds depends upon the approximate date of transplanting to the garden. Lettuce or cabbage can be set out of doors very early and therefore can be started before tomatoes or peppers. As soon as the plants seem crowded in the box they should be transplanted or thinned so that they will not become spindly. In from six to eight weeks plants reach the transplanting size.

When it is necessary to provide more space for the growing seedlings they may be thinned out in the box in which they are grown, thinning to one or two inches between plants.

Early plants can also be secured by planting seeds out of doors in a hot-bed.

Dig a pit 3x6 or 6x6 feet, two feet deep, on the sunny side of a building. Line inside of pit with old boards, held in place by stakes. Make boards along back of pit extend six inches higher than in front, so that sash will slope when placed on top. Get a load of fresh horse manure, let it heat a few days, fork it over, let heat again and put into the pit, tramping firmly, until manure is eighteen inches deep. Place sash over pit, bank firmly with earth and a few days later place a four-inch layer of soil over the manure. Plant seeds in this when temperature gets down to 90 deg. F. and stays thereabouts.

The Treatment of Mange.
Every domestic animal is subject to that obnoxious and contagious disease mange, scabies, or itch, says Dr. Hilton, Chief Veterinary Inspector of the Dominion Health of Animals Branch in a bulletin "Mange in Cattle, Horses and Sheep." The Animal Contagious Diseases Act requires that every owner, breeder, dealer and veterinary surgeon, suspecting the existence of the disease shall immediately notify the nearest veterinary inspector.

Mange is caused by a minute parasite, commonly known as a mite, living on, or in the skin, and reproducing itself by means of eggs. When it is stated that the female can produce a million and a half descendants in the three months or less, and that they swarm off dead animals to lie in wait for living ones, it will be seen how terribly ravaging the disease may become. In his bulletin, which can be had free on applying to the Publications Branch, Dept. of Agriculture, Ottawa, Dr. Hilton concisely but minutely describes the characteristics and nature of the disease, and prescribes treatment, which includes, in the case of horses and cattle, first washing with hot water and castile soap, then thoroughly drying, and then applying a mixture composed of two pounds of sulphur, eight ounces of oil of tar, and one gallon of raw linseed oil. When the outbreak comprises a large number of animals, dipping is recommended in a mixture composed of 24 pounds of sulphur, ten pounds of fresh unslaked lime, and a hundred gallons of water. The treatment must be applied under the supervision of a veterinary inspector. A list of disinfectants, with instructions as to preparation and use, can be obtained free of charge on application to the Veterinary Inspector General, Ottawa.

In balancing the debits and credits of the months or years, let us not forget that the greatest assets of all are FRIENDS.

I solder an inverted tin pan (which can be bought for ten cents) to the bottom of my lanterns. It prevents upsetting just as well as a cement base, and is much lighter to carry. As it presents a ring on the bottom it stands steady on uneven floors.—John Gormly.

Results of Spray Experiments in 1923

BY L. CAESAR, ONTARIO AGRICULTURAL COLLEGE.

It should be kept in mind that the orchard—10 acres—was composed of alternate rows of Snow and McIntosh apples about 20 years old.

The following are the most important results obtained:

1. Check trees averaged 91 per cent. scab.
2. Trees sprayed only once, namely, as buds were bursting, averaged 46 per cent. scab.
3. Trees sprayed only once but later than above, namely, as blossom bud clusters were just appearing but were not yet showing pink (this stage is known as the pre-pink stage), averaged 27.7 per cent. scab.
4. Trees sprayed twice, namely, at either of the above times and again as the blossoms were ready to burst—the pink stage—averaged 16.8 per cent. scab.
5. Trees sprayed three times with lime-sulphur and either arsenate of lead or arsenate of lime, averaged 2.6 per cent. scab.
6. Trees sprayed with dry lime-sulphur, not soluble sulphur, at the maximum strength recommended by the manufacturers, four applications being given and all well timed and thorough, averaged 18.1 per cent. scab.
7. Wettable sulphur was shipped too late to use on any but the third or calyx spray, lime-sulphur being used in the first and second spray. Trees thus treated averaged 3 per cent. scab.
8. Trees sprayed with Bordeaux throughout showed an undesirable amount of russetting of the fruit but the foliage was good. The russeted fruit averaged 33 per cent. scab.
9. Where Bordeaux was used for the first two sprays and lime-sulphur for the third, the foliage was greener and better than where lime-sulphur was used in all three applications, the fruit too was but little russeted.
10. Arsenate of lime gave as good control of worms as arsenate of lead, the average for both plots being 4 per cent. wormy apples, all being due to side worms of which more than half made only surface injuries and did not succeed in entering the fruit.
11. A large excess of lime in making Bordeaux mixture seems desirable as there was almost no yellow leaf or leaf drop this year compared with a heavy drop last year when less lime was used. The formula this year was 3 lbs. bluestone, 9 lbs. hydrated lime, and 40 gallons water.
12. Hydrated lime gave just as satisfactory results as stone lime in making Bordeaux mixture and was, of course, much more convenient to use and store.
13. The addition of 3 lbs. hydrated lime to lime-sulphur before adding arsenate of lead lessened greatly the amount of sludge or blackish precipitate but seemed to make little or no difference in the efficiency of the spray.
14. Four sprays this year were no better than three in Norfolk County where the experiments were conducted. Last year a fourth spray was very valuable, especially in preventing scab.

The Period of the Judges, Judges chs. 2-16. Golden Text— I will heal their backsliding, I will love them freely— Hosea 14: 4.

CONTINUATION OF THE STORY.—The book of Judges contains both the story of the period after Joshua, and an interpretation of the story. It tells us both what happened, and why it happened. It reveals the hand of God in the history, the just and yet merciful dealing of God with his people. It is a long and changeable record of evil and of good, of times of conflict and of rest, of defeat and of victory. The calamities which befall them are regarded as punishment for their evil deeds, and their deliverance as wrought by the divine compassion. Always when in their distress they cry to God, he raises up for them a deliverer.

NOTES: Ch. 2:16-18. The Lord raised up judges. This is the writer's summary explanation of all that happened. The people sinned, the Lord was angry with them and gave them into the hand of their enemies. In their distress they repented and cried to him for deliverance. He had compassion upon them and delivered them. The agents whom he employed were these men who were both warriors and judges, leading in war and ruling in peace. And, as with Moses and with Joshua, so now "the Lord was with the judge, and delivered them out of the hand of their enemies." Compare Ps. 78: 32-33.

It may be argued that all this is too mechanical, and that it does not perfectly represent the ways of God. The nation that sins is not always punished in this way, nor is the repentant nation always delivered. The people of Israel faced this fact themselves in the days of Assyrian and Babylonian oppression. The book of Job struggles with its problem of the suffering of the righteous and the prosperity of the wicked, and leaves it at last a mystery in the hand of omnipotent wisdom. Fundamentally, however, the writer of this history is right. It is well with the righteous. It does go ill with the wicked. The signs of God's wrath are not always present and visible, but his wrath against sin is inevitable. None can escape it. And just as sure as his wrath, so sure is his mercy to the distressed and the penitent. Interpret history as you will, the vision of faith will still see in it everywhere the working of the hand of God.

Ch. 7: 2, 3. The Lord said unto Gideon. We turn from the general statement of God's way with Israel, and to the story of one of the judges. Gideon is raised up by God to deliver Israel from the Midianites.—Arab hordes from the eastern wilderness, who had held the land in subjection for seven years. Two of Gideon's brothers had been slain by them. Called of God to be the nation's deliverer, he first of all made war on the idol worship which had its seat in his own town of Ophrah. Then he rallied the men of the northern tribes, Manasseh and Asher and Zebulun and Naphtali, against the enemy. The Midianite army made its camp in the valley of Jezreel. Its forces far outnumbered the forces which Gideon led, and some of his men were afraid. The Lord's word to him was a word of wisdom. The battle was not to be won by men who were "fearful and afraid." When permission was given, a great number turned back and Gideon had but ten thousand left.

Ch. 8: 1-3. Yet too many. We may fairly understand the story to mean that Gideon again and again sought counsel of the Lord in prayer. The divine word was spoken in his mind and heart. God worked through the mind and by the hand of his chosen man, while Gideon ascribed all his strategy and skill, and his final victory, to God. Here, then, he was made to see that, in conflict with so powerful an enemy,

work to which Gideon was called was practically a revival of religion. Nothing other and nothing less could save the nation. And only in so far as people to-day can be brought to the love and service of God is there any hope. Pure religion inspires the soul, corrects the judgment, clears the vision, ennobles the motives, leads to right decisions, and kindles victorious faith.

The Sunday School Lesson

FEBRUARY 24
The Period of the Judges, Judges chs. 2-16. Golden Text— I will heal their backsliding, I will love them freely— Hosea 14: 4.

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Profitable Cow Testing.
Cow-testing has shown an improvement in three years in one herd in Prince Edward Island from an average per cow of 5,990 lbs. milk and 217.6 lbs. fat to 7,884 lbs. milk and 280.1 lbs. fat and in another herd from 7,416 lbs. milk and 252.9 lbs. fat to 10,218 lbs. milk and 349 lbs. fat. In New Brunswick a herd in which the system was followed increased from an average per cow of 4,197 lbs. milk and 219.6 lbs. fat to 5,537 lbs. milk and 275.9 lbs. fat. A Nova Scotia herd recorded an increase from an average of 4,044 lbs. milk and 169.1 lbs. fat to 5,554 lbs. milk and 234.7 lbs. fat. In Quebec one herd increased from an average per cow of 6,682 lbs. milk and 254.2 lbs. fat to 8,164 lbs. milk and 320.3 lbs. fat. Another herd in the same province developed from an average of 5,240 lbs. milk and 199.4 lbs. fat to 7,067 lbs. milk and 264.1 lbs. fat. In Ontario an average increase per cow was registered from 6,432 lbs. milk and 218 lbs. fat to 10,235 lbs. milk and 346.4 lbs. fat, an actual increase through cow-testing of 3,803 lbs. milk and 128.4 lbs. fat! In Alberta an average per cow was increased from 4,693 lbs. milk and 168.2 lbs. fat to 8,359 lbs. milk and 254.6 lbs. fat, an increase of 3,766 lbs. milk and 86.4 lbs. fat.

A good colony of bees at the beginning of the main honey flow should consist of one selected queen and 75,000 to 100,000 workers. There should be as few drones as possible.

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We pay weekly and offer steady employment selling our complete and exclusive lines of whole-root fresh-dug-to-order trees and plants. Best stock and service. We teach and equip you free. A money-making opportunity. Luke Brothers Nurseries, Montreal.