# Soils and Crops

Address communications to Agronomist, 73 Adelaide St. West, Toronto.

### Home-Made Apple Cider.

**Mixed Farmer, Oxford Co.—We have a large quantity of undersized and imperfect apples. Please advise me of the best way of converting these into unfermented cider.**

Answer—Unless there is a large cider mill in the neighborhood a small hand cider mill may be used for grinding the apples. Only clean, wholesome fruit should be selected. These may include clean windfalls, bruised and scabby fruit, and small and poorly colored specimens. The Horticultural Division of the Experimental Farms made a test of a small press of this description.

After running the apples through the grinder or pulper, the pulped mass was pressed by hand and the extracted juice run through a filter of several thicknesses of clean sacking and thin factory cotton, to take out all seeds and pulpy matter. The filtered liquid appeared reasonably clear and was then stored in barrels for a few days until fermentation had commenced. The cider was then run into bottles and capped by a hand capping machine and immediately pasteurized to arrest fermentation.

After considerable experimentation it was found that it was possible completely to arrest fermentation at any stage without imparing its value. Extreme care, however, is necessary in this respect. It was found that the temperature must be kept at from 135 to 140 deg F. If permitted to go above 140 deg. a cooked flavor is imparted, and if below 135 deg. pasteurization is not complete. The length of time required was found to be two hours, and the method as follows:

After capping the bottles (having filled them to within one inch of the top) place them in a boiler of warm water and heat up to 135 deg. F. Keep at this temperature for two hours, taking care that at no time does the temperature rise beyond 140 deg. F. At the end of the two-hour period the bottles may be removed and kept indefinitely without fear of fermentation proceeding. Some sediment may be noticed in the bottle after a few weeks or even days, but this is merely the precipitation of the portion of the fruit juices and should be shaken up with the rest of the liquid before drinking.

### Grades For Apples.

**Subscriber, Wellington Co.—Will you please publish the definition of grades of apples according to the requirements of the Fruit Marks Act?**

Answer—A barrel of No. 1's contains no culls or unsound apples. Must all be of not less than medium size and good color for the variety, normal shape, and not less than 90 per cent. free from scab, worm holes, bruises and other defects.

A barrel of "Orchard Run" contains apples of one variety only, but of various sizes—just as they come off the trees, with all culls removed. An average barrel will contain approximately 70 per cent. one's and two's—balance "domestics" and three's. This is a very desirable grade for home use. In view of the fact that there are some No. 3's in the barrel, it has to be marked "Orchard Run No. 3."

A barrel of No. 2's contains no culls or unsound apples. Must all be of not less than nearly medium size, and with some color for the variety and not less than 85 per cent. free from the defects mentioned above.

A barrel of Domestic's contains no culls or unsound apples. Must all be not less than medium size for the variety (same as No. 1's), and not less than 80 per cent. free from worm holes (may be slightly affected with scab and other minor defects).

A barrel of No. 3's must contain no culls. "Culls" mean fruit that is either very small for the variety, seriously deformed, has 15 per cent. or more of its surface affected by scab, insect injuries, cuts or bruises, etc., or is immature.

### Corn Substitutes for Silage.

**X. Y. Z., New Ontario—As a newcomer to this district I desire to grow ensilage for winter feeding beef cattle. Corn cannot be depended on here to give satisfactory crop. What other crops can be used in its stead?**

Answer—The results of experiments carried on by the Dominion Experimental Farms System go to show that there are several crops that can be used for ensilage where corn cannot be depended on.

Probably chief of these, at least from a tonnage standpoint, is the sunflower. It is a comparatively new silage crop which is gaining rapid favor in the West, as it will grow where corn will not grow and yields a heavy tonnage of fairly palatable silage, though, in the latter respect, it does not equal corn silage or even good pea and oat silage. It takes the same place as corn in the rotation and is planted, cultivated and harvested in the same way, the cutting being done when the sunflowers are about 20 to 30 per cent. in bloom. If left till a larger percentage is in bloom, the palatability of the silage is not so good as it is believed to be the heads which cause the rather rancid taste and odor peculiar to sunflower silage. At the Central Experimental Farm in 1921 sunflowers gave the same tonnage, and cost practically the same per ton in the silo as did corn. In a feeding test with dairy cows, they gave almost equal results, though corn had the advantage in every respect. They should be equally well suited to feeding beef cattle.

Other outstanding crops for silage in place of corn are green oats or peas, oats and vetch mixture, or in fact a mixture of any of the cereals such as wheat, oats, rye and barley. Even the clovers, including red clover and sweet clover, and alfalfa have been used when the season was such that they could not be used as hay or pasture. They are not, however, as suitable as are the cereals. Possibly sweet clover, being the least suitable for hay and yielding a heavy tonnage, is best suited for silage purposes. Cut sufficiently green and well tramped into the silo, these crops, particularly the cereals, make an excellent class of silage much relished by the cattle, being more palatable than sunflower silage. In districts suited to corn or sunflowers, the cereals and legumes mentioned would hardly yield sufficiently heavy to compete with the former, but in most districts where corn and sunflowers can not be grown, the cereals or sweet clover would grow sufficiently heavy to yield an economical crop. At the Central Experimental Farm, Ottawa, a crop of peas, oats and vetches sown at the rate of 2 bushels oats, ¾ bushel peas and ¼ bushel vetches gave a yield of 6.14 tons per acre at a cost, stored in the silo, of $3.32 per ton. This silage was relished very much by the cattle. Any cereals or legumes used for silage purposes can be grown in their regular place in the rotation. They should be cut when just heading out while the stalks are still juicy, then be put into the silo immediately. Being hollow-stemmed crops, they require extra tramping in the silo to exclude the air in the stems and may even require the addition of water if natural moisture is lacking.


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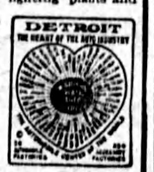


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# The Dairy

Every dairyman has had his experience in breaking heifers to milk. Many good cows have been partially ruined through improper handling the first few months following freshening.

It requires a great deal of tact and patience to prevent a heifer contracting notional habits when breaking her in to milk. No set rule can be laid down. Heifers vary quite widely in temperament and disposition. I have always found it a good plan to make a careful study of the characteristics of each heifer long before she comes fresh.

A heifer of nervous disposition should be handled very kindly. Severe and abusive measures are very likely to intensify the trouble. It has been my experience that it is a good practice to begin handling heifers several months before they freshen. They should be trained to take their place in the stable. If stabled regularly it is an easy matter to work around them and the udder should be rubbed gently so the heifer will become accustomed to being handled.

The heifer that has been accustomed to being handled previous to freshening does not become so nervous when the udder becomes inflamed, and she can be treated with less irritation. Indeed, I have found that by keeping the udder well greased before freshening, inflammation may be kept out and the udder free from caking.

I believe in treating heifers very kindly while being broke to milk. However, it has also been my experience that kindness is not always appreciated. I do not believe in severe methods in training heifers to milk, although at times punishment wisely administered will accomplish a great deal more than any other kind of treatment. The use of the figure eight on the hind legs will sometimes accomplish good results. A rope around the body just in front of the udder and drawn tightly also effects good results.

Some cows produce well, but they possess chronic habits that makes it rather disagreeable to milk them. I practice keeping heifers from gentle cows that stand well and give their milk down freely There are cows in every herd, however, that are good producers, but milk hard and slow. Heifers that possess such qualities are very likely to give a great deal of trouble when being broke to milk, and as a result they frequently become chronic kickers.

## From Single Grain to Three Hundred Million Bushels in Sixteen Years.

A tribute was paid to the value of Marquis wheat in an article in "The Outlines of Science" recently published under the editorship of Dr. J. Arthur Thomson, Professor of Natural History of Aberdeen University. An extract from Dr. Thomson's article follows:

"One of the factors that assisted the Allies in overcoming the food crisis in the darkest period of the war was the virtue of Marquis wheat, a very prolific, early ripening, hard red spring wheat, with excellent milling and baking qualities. It is now the dominant spring wheat in Canada and the United States and has enormously increased the real wealth of the world in the last ten years. Now our point is simply that the Marquis wheat is a fine example of evolution going on. In 1917 upwards of 250,000,000 bushels of this wheat were raised in North America, and in 1918 upwards of 300,000,000 bushels, yet the whole originated from a single grain planted in an experimental plot at Ottawa by Dr. Charles E. Saunders, so recently as the spring of 1903.

"Out of experiments, selections and rejections, Marquis wheat emerged rich in constructive possibilities and probably the most valuable food plant in the world. The first crop of wheat that was destined within a dozen years to overtax the mightiest elevators of the land was stored away in the winter of 1904-5 in a paper packet no larger than an envelope."

Think first, act next, then rejoice. Act first, think next, then regret.

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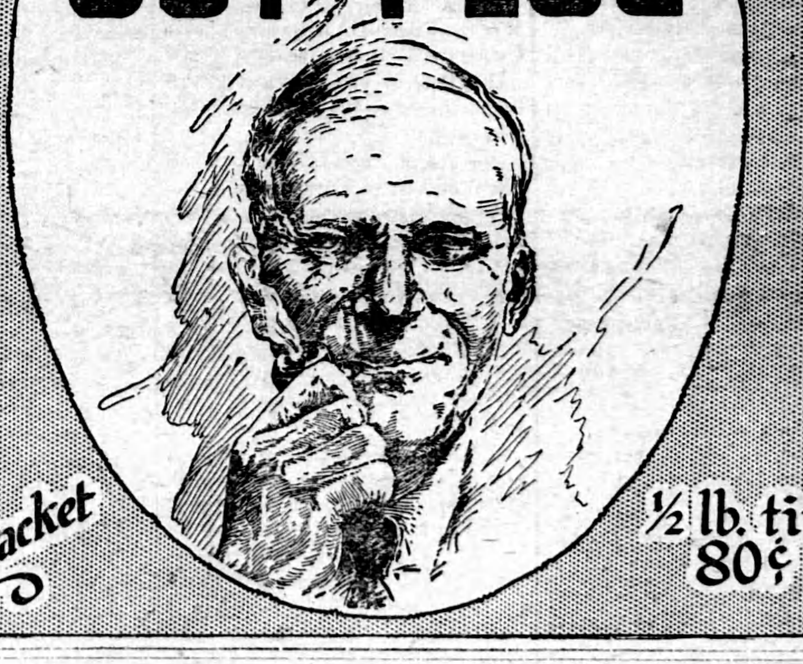

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# Parents as Educators

## Imitation—By Sophie Kitchener

"What adult deed is there that children will not at once imitate? Therefore, be careful, you grown-up people, what you do in the presence of these little ones."—Froebel.

The family is at breakfast, Mother, Daddy, and baby Betty, aged two. Everything is very cheerful and happy until baby decides she must have the inside part of a roll. Now Mother doesn't think that the soft hot bread is good for baby's youthful stomach and so she says, "No." Betty becomes disgruntled and turns to her usual court of appeal—Daddy. It happens, however, that Daddy, knowing that Mother is right, is in a quandry. So for the time being Betty wails in disappointment. But Mother has to see about something in the kitchen. As soon as she is well out of the room Daddy leans over to Betty, stuffs the roll in her mouth, and says, "Here, hurry and take it before your mother comes back."

This illustration speaks for itself. What kind of a standard is Daddy setting before his Betty, who is in truth the pride of his heart? Children learn by imitation, and if the examples set them are not worthy, they can't be expected to invent worthy ones all by themselves. A parent's indulgence of his children should not make him willing to sacrifice the child's future standards to his present pleasure. With parents it is often a case of its being harder to discipline themselves than to discipline their children. Because they want the full wealth of their child's love they buy it with weakness. As a result they receive a great deal of affection, provided the child always gets what it wants, and have a great deal of trouble when it doesn't. True, this little Betty loves her Daddy, and in any predicament or childish happiness calls always for him, but should he be proud to be called by the baby whose love he has bought with pampering?

What is more, such examples will increasingly lower the baby's stamina and will warp her viewpoint beyond repair. For since children do develop through imitation, Betty will probably be the sort of little girl who must have what she wants regardless of everything else; all because her father taught her how.

Therefore it is well for parents to watch first their own weaknesses so there won't be so many for their children to imitate.

KICKED OUT, BUT HE LIT COMING BACK

—Orr, in the Chicago Tribune.

# THE SUNDAY SCHOOL LESSON

## DECEMBER 3

**Jesus Sending Out Missionaries, Luke 10: 1-11, 17. Golden Text—The harvest is plenteous, but the laborers are few: pray ye therefore the Lord of the harvest, that he send forth laborers into the harvest.—Luke 10: 2 (Rev. Ver.)**

**Lesson Setting**—After leaving the scene of our last lesson, Jesus continued his preaching activities in Galilee, "healing every sickness and every disease among the people." As the multitudes thronged around him with their needs, Jesus was "gripped in his heart," concerning them. It was this sense of the urgency of the work that made him send out the Twelve on a mission clothed with authority. Later when his Galilean ministry was finished and when he was setting his face steadfastly to go to Jerusalem and the Cross, he sends out the Seventy in advance to make a last appeal to the Jewish people.

**I. The Need of Missionaries, 1, 2.**

V. 1. **After these things.** This marks a new stage in the ministry of Jesus, when he leaves Galilee and before he begins what is called his Perean ministry on the east side of the Jordan. **Appointed other seventy also.** The time is short and many places must be visited and Christ must increase his band of workers. The number "seventy" represented, in the mind of Jesus, the number of the members of the council of elders chosen by Moses (Num. 11: 16) as the twelve represented the number of the tribes of Israel. **Two and two;** for mutual help and encouragement. **Before his face . . . every city whither he would come.** The mission of the Twelve was confined to the lost sheep of the house of Israel. This restriction is not applied to the work of the Seventy. The mission of the Twelve gave them complete authority, while that of the Seventy is only preparatory to Christ's coming. The Twelve ware his representatives. The Seventy are his advance agents.

V. 2. **The harvest truly is great.** The figure of the "shepherdless sheep" emphasizes the helplessness of the multitude. The figure of the "harvest" emphasizes the opportunity of that helplessness and the urgency of immediate action. **Pray ye therefore.** The number of souls waiting to be reaped is out of all proportion to the number of reapers. **Lord of the harvest.** This waiting harvest, this abundant harvest, belongs to God. It is to be gathered for him. **Send forth laborers;** rather, "drive forth laborers." Send them forth under the strong compulsion of love for God and man. These words of Jesus, while bearing on a particular situation, are world-wide and age-long in their implications. Need gives us the world-wide vision, love gives us the world-wide motive.

**II. The Work of Missionaries, 3-11, 17.**

Vs. 3, 4. **As lambs among wolves.** Jesus does not conceal the real nature of the work. There were dangers against which in themselves they would be powerless. Jesus never sought to kindle the enthusiasm which was based on an ignorance of the real conditions of the work. **Carry neither purse, nor script, nor shoes.** They were to provide neither money, nor food in their wallet, nor equipment for the journey. They were to travel light and trust God for these things as well as for protection from danger. **Salute no man by the way.** They were not to lose time by the usual elaborate Eastern salutations, or by conversations by the way.

V. 5. **Into whatsoever house ye enter.** It was to be a home to home evangelization. **Peace be to this house,** a customary Eastern salutation, but with a new and deeper meaning.

V. 6. **If the son of peace be there;** "if a son of peace." If the house owner were a man of peaceful and receptive heart, he would receive the blessing of the good news they had to impart. **If not, it shall turn to you.** If the word of good news brought no blessing to the unreceptive listener, it would bless only the speaker of the good news.

V. 7. **In the same house remain.** They were to accept the hospitality of the house as those who had something to give as well as something to receive. **Eating and drinking such things as they give.** If they were to eat with a feeling of independence, so also with contentment. **Go not from house to house.** Christ's representatives are to be courteous, independent and contented.

Vs. 8, 9. **Into whatsoever city . . . heal.** Christ here defines the duty of the Seventy. They are to be healers. **Say . . . The kingdom of God is come nigh.** As in all Christ's work, bodily healing is subordinated to the greater work of bringing men into the right relations with God. Healing is a means, not an end.

Vs. 10, 11. **Into whatsoever city ye enter, and they receive you not.** In ch. 9: 52-56 we read of a certain Samaritan village that refused to receive Jesus. John proposed vengeance as their due reward. But Jesus rebuked the spirit of John. **Go your ways . . . even the very dust.** The Jew, when he stepped on the Jewish soil, shook off the dust of the unclean Gentile lands through which he had passed. **Notwithstanding the kingdom of God is come nigh.** The city which has refused to receive them has refused a great opportunity.

V. 17. **The seventy returned with joy.** They had found the name of Jesus work wondrous things, even to the casting out of demons.

**Application.**

The great call is that the world shall be won for Christ. Dr. Harry Emerson Fosdick says that too often Christianity becomes like the streets of a great city where all forms of traffic jostle each other and where merchants in their fine cars, and huxters with their pushwagons, and hundreds of pedestrians and little children all strive for a place. Then fire breaks out, the heavy gong rings through the streets and quick as a flash the streets are cleared so that the fire engine has right of way. Sometimes Christians have spent much time and temper discussing non-essentials, when the urgent call for evangelization comes from the non-Christian world.

"Distant pastures look the greenest" because the idealistic future always seems more rosy than the grim reality of the present.

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