Soils and Crops

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

Fourteen Rations For Cows.

Jerseys and Guernseys should have one pound of grain for every three and one-half or four pounds of milk they give; Hosteins, Shorthorns and Ayrshires, one to every four or four and one-half pounds of milk. This rule is general, of course, and every dairyman should watch his cows to see that they are getting all the grain they can profitably use and no more.

Clover and alfalfa hay is the best kind of roughage. Timothy hay is poor. Corn silage furnishes energy and takes the place of grass. If good silage of some kind is not available, roots can be used.

For feeding with timothy hay, corn fodder, millet, rowen, and other roughages low in protein, use these grain rations:

Ration 1
- 100 pounds ground oats or corn-and-cob meal
- 100 " wheat bran
- 200 " cottonseed-meal
- 200 " linseed-meal

Ration 2
- 100 pounds cornmeal
- 100 " cottonseed-meal
- 100 " old process linseed-meal
- 200 " wheat bran

Ration 3
- 200 pounds corn-and-cob meal
- 100 " cottonseed-meal
- 100 " old process linseed-meal

Ration 4
- 200 pounds cornmeal
- 150 " cottonseed-meal
- 100 " gluten feed
- 100 " wheat bran

Ration 5
- 200 pounds cornmeal
- 100 " cottonseed-meal
- 100 " ground oats
- 100 " old process linseed-meal

Ration 6
- 300 pounds corn-and-cob meal
- 200 " cottonseed-meal

Ration 7
- 200 pounds barley
- 200 " cottonseed-meal
- 100 " alfalfa meal
- 100 " wheat bran

When feeding such roughages as clover, alfalfa, soybean, or vetch hay, or other legume hays, all of which are rich in protein, these grain mixtures are good:

Ration 8
- 400 pounds cornmeal
- 100 " cottonseed-meal
- 100 " gluten feed
- 100 " wheat bran

Ration 9
- 400 pounds cornmeal
- 200 " gluten feed
- 200 " old process linseed-meal
- 100 " ground oats

Ration 10
- 300 pounds barley
- 100 " cottonseed-meal
- 100 " alfalfa meal
- 100 " wheat bran

Ration 11
- 100 pounds barley
- 200 " cocoanut-meal
- 100 " ground oats
- 100 " wheat bran

Ration 12
- 300 pounds corn-and-cob meal
- 200 " gluten feed
- 100 " cottonseed-meal
- 100 " wheat bran

Ration 13
- 100 pounds cornmeal
- 100 " old process linseed-meal
- 100 " ground oats

Ration 14
- 100 pounds ground oats
- 200 " corn-and-cob meal
- 100 " gluten feed

Why Incubators Pay.

In the days when brooders were poor in quality some poultryman doubted the value of incubators because of the large mortality among chicks brooded artificially. But with modern brooding equipment to care for the chicks, we find that the incubator is practical and profitable.

When only hens are used for hatching it is difficult to hatch early. Often the best hens that lay through the winter are the hens that wish to set first in the spring. Sometimes these hens are set on eggs laid by the poorer layers that have started to lay later in the winter. This means that the best hens are turned away from the production of eggs when they are most needed to produce chicks. The hens of less value which have not become broody are then producing the eggs for hatching.

The incubator enables the poultryman to keep all his hens busily producing eggs. For example, a 360-egg incubator will be doing the work of twenty-four hens. Those hens will be laying and I believe the strain on the vitality of a hen due to laying is less than the devitalizing effect of three weeks steadily on the nest, followed by a long period of worrying while penned up in a brood coop mothering the chicks.

It seems to help in breeding out the tendency to broodiness in a flock if incubators and brooders are used and the hens are broken up promptly and returned to laying condition. One of the items of work in managing flocks of the American and Asiatic breeds is to constantly be penning up broody hens from spring until winter and even during the coldest part of winter. It certainly pays to breed from hens with the smallest possible tendency to broodiness. A good incubator not only produces vigorous chicks but pays for itself by saving time for the hens.

The Children's Hour

The "Swifter"

Each winter for the past several years The Weekly Record had offered a $50 prize to the speediest bob-sled in the county, and a silver cup to the bob winning the long-distance race. Never had the same bob won both prizes, and never had a Magnolia bob been a winner. In its last issue the Record had announced the coming Saturday as the day chosen for the races.

The conditions were few and simple. In the speed contest the bobs were to race three abreast, and there were eighteen entries which meant six races to pick six winners. These would then fight the final issue.

The course was a steep hill about half a mile long, with a long smooth stretch at the bottom. The Record office faced on this smooth stretch, and its porch served as judges' stand opposite which stood the finishing stake.

This year the races promised to be more exciting than ever and the whole town was talking about them. Eight neighboring villages were represented in the entries, with the same bobs that won last year entered again. Magnolia supporters had little hope of winning, for last year both their bobs had been badly beaten. This year these were entered again, but the people did not show much enthusiasm about them. To be sure, there was a new entry; but no one had seen the bob and it belonged to a "couple of kids," and altogether people didn't know what to expect.

Meanwhile, Walter and Fred had determined to win. No trouble had been spared to make their bob a success and there were a number of points in its favor. The sleds, instead of being held solidly to the connecting board, were both hinged so that in going over rough places they would give, rather than dig through the bump. This elasticity also lessened the strain on the board. There was improved steering gear, consisting of a cross-bar which not only meant easier steering but left room for another passenger. None of the other bobs had been so equipped, but were steered by the old-fashioned rope.

Many were the exclamations of delight and surprise when, for the first time, the new sled appeared on the hill. Immediately Magnolia's hopes revived. With mad haste the boys pulled their bob to the top of the hill, all the while answering as many questions as breath would allow. By the time the bob was in position, it was the centre of an admiring throng. Carefully Walter ran a file over her four runners and the new bob was ready for her maiden trip. The boys scrambled into place and Fred, insisting that Walter be the first to steer, took his position at the back ready to shove off. But just as they were ready to move, they heard themselves greeted from the sidewalk.

"Well, boys, what have you got there?" It was Mr. Woodson, the Mayor of Magnolia who spoke. All the boys answered excitedly, but it was Walter who finally explained about their big, fine plan.

"And you say this is the first trip?"

"Yes, sir." Walter looked very proud.

"Well, that's fine, and what have you named her?"

Here was something none had thought of. All agreed a name was necessary and many names were promptly suggested. At last Mr. Woodson raised his hand and the boys fell silent.

"How does the 'Swifter' strike you, boys?"

The name was adopted with cheers and hurrahs.

"Well, then let's christen her," continued the Mayor as soon as he could be heard, and laying down the bundles he was carrying, he stepped to the side of the bob. The boys formed a circle around him.

Solemnly, standing with one hand on the steering bar, he spoke:

"I christen this bob the 'Swifter,' and may she bring success to Magnolia on Saturday."

A cheer burst from the watching boys, ringing out wildly for the Mayor, the bob, and its owners. Walter said later that it was the proudest moment of his life; and he looked it, too, for tears of joy streamed down his cheeks.

Rather timidly he asked Mr. Woodson as sponsor to ride down on the trial trip and was delighted when he accepted. Again Walter took his place at the bar, with the Mayor at his back. "Ready," he yelled, and at last the "Swifter" was off.

Loaded to capacity, it had responded to Fred's slight push almost with a bound and was fast speeding down the hill. Other sleds that had started with it were soon outdistanced. For the first few seconds, Walter merely held the bob to the course; then very gently he tried the new steering apparatus. It worked like a charm—the slightest touch was enough to swerve the heavy bob. There was no friction. The response seemed more like the smooth even play of muscles than of wood and iron.

They passed the half-way mark at such speed that the trees looked like fence pickets and the wind beat so terribly against Walter that he could scarcely breathe. Tears blinded him and he was almost frightened at the power of this thing which only he was able to guide.

Almost in front of The Record office, the boy saw a little girl on a sled in front of him. She heard the "Swifter's" gong and in trying to get out of the way upset herself. The few bystanders stood horrified as the speeding bob swept toward the prostrate figure. Those on the sled shrieked. Walter alone was calm. Judging the distance to a nicety and swerving the bob, he swung around the child and back into the centre without even losing any of the precious speed.

It was a master stroke. The bob missed the little girl by no more than a few inches; and a hoarse, wild cheer broke from the onlookers, at the realization of Walter's pluck and prompt action.

The bob, to be sure, had swept on two runners, but had righted itself without unseating its frightened crew. On they went, and soon reached a series of bumps on the road. Over the bumps they sped with hardly a jar. This was a great victory for the hinged sleds and might easily mean the winning of the distance race, since to any sled not having the hinges the bumps were impassable, and must be steered around with a serious loss of speed.

On and on they slipped along the level stretch below the hill. Would they ever stop? They passed the stake which marked the spot where last year's distance winner had stopped, and it was twenty feet farther before the bob slowed to a stop on ground never before reached by any racer.

Each afternoon many people gathered on the hill to watch the "Swifter." Every one was disappointed, however, for not once did it reach the first mark. Disquieting news had also come from Harwood, that the "Wind" and the "Flyer" were also equipped with hinges and steering gear. And it was not until the "Swifter's" last trip on Friday night that the first mark was reached again.

On Saturday morning the hill was given over to the out-of-town contestants, and by eleven o'clock all the bobs had arrived. Walter and Fred with their team-mates stood on the porch of The Record office and watched their rivals speed by. There were three sleds that had steering bars, the "Flyer" and the "Wind" of Harwood, and the "Dart" of Lawson. The rest, while they were fine bobs, did not worry the boys.

The "Flyer" and the "Wind" deserved their names; and each time they passed, the boys' hopes fell. But the first view of the "Dart" was the last straw. Carrying twelve men, it seemed literally to jump from the top to the bottom of the hill. With heavy hearts the Magnolia boys trudged home to lunch; and it was a silent little group that pulled the "Swifter" up the hill a few minutes before two o'clock.

A finer collection of bobs would have been hard to find than that which greeted the eyes of the editor of The Record as he stepped forward and formally welcomed the visitors.

"The first race will be for distance and I'll not keep you waiting while I do a lot of talking," he smiled at the expectant and excited bob crews before him, "but will let you start at once. There are but two conditions: the first that you start at half-minute intervals and the second that the Magnolia bobs go last. All right, and thank you."

As he stepped back the "Wing," a light bob from Greenton slid into position. A moment it hung motionless; then the starter sent it on its way and the races had begun. The "Wind" took its place and shot in pursuit. Two smaller bobs followed, and then the "Dart" was ready. Off she went to the sound of lusty cheering. One after another the sleds left.

How Walter and Fred wondered about the fatal marks being made at the bottom of the hill. To win, they had to beat them all. At last their turn came and, with Mr. Woodson at Walter's back, Fred pushed off.

The "Swifter" gained speed slowly, while cheer rose upon cheer and the crowd surged beyond the ropes so that some of its number were almost run down. To Walter it seemed as if he were flying through a narrow black lane of yelling, gesticulating forms. He gritted his teeth, not daring to look to right or left.

As they reached the smooth ground, Walter caught a glimpse of his father standing on a sleigh-seat, waving and cheering him on like a crazy man, while his mother, with a strained look on her face, clutched the shoulder of Florence Wolfing, his particular friend.

The lane narrowed as the people crowded closer. The boy's every faculty was alert. Suddenly he became conscious of a pain in his shoulder and realized that in the excitement Mr. Woodson was pulling unmercifully at his arm. He wrenched free and heard the man shout something in his ear. Past The Record office they sped, hands from every window waving them on.

Soon the speed began to slacken and Walter noticed other bobs at the roadside, the "Wing," the "Wind" and the "Flyer" among them. Then he saw the "Dart." Slowly his bob crawled toward her, came even with her, and then—a wild cheer went up, for the "Swifter" had won.

As soon as word was passed that the judges for the speed race were ready, the last big event began. The first three bobs to take their places were the "Ralph," "Wind" and "Light." This race the "Wind" won by a full length. Next followed the "Flyer," "Gyp" and "Speedy," and the "Flyer" won. Then the three Magnolia bobs started, but it was not much of a race, for the "Swifter" soon left the others far behind.

The last three races followed and were won by the "Dart," "Wing" and "Rapid." As the six winners again climbed the hill, all were quiet, even the onlookers. At the top of the hill the captain of each crew drew a slip of paper from a hat. On three slips there were crosses, the others were blank. Those drawing crosses would race together as would those drawing blanks. The crosses were to race first and proved to be the "Wind," "Dart" and "Wing."

The road was wide and equally well packed, so position mattered little. Nevertheless the crew drew for position and the "Wing" won the centre, with the "Dart" at the right and the "Wind" at the left. In this race the "Dart" took the lead immediately and held it.

Walter and the other two captains drew for position. The "Rapid" won the centre, the "Flyer" the right and the "Swifter" the left side. As Walter waited for the signal, he looked anxiously at his opponents. "Rapid" had but six fellows while the "Flyer" carried eight. Just here Mr. Woodson, who had also been looking over the other two bobs, whispered, "We've got the weight. At the start the 'Flyer' will gain a bit but we'll win. 'Rapid' won't be in it."

Just as Mr. Woodson had said, the "Flyer" crept slowly ahead. For a few seconds the "Rapid" was neck and neck with the 'Swifter" then fell behind never to catch up. The snow cut by the runners of the "Flyer's" back sled flew in Walter's face. Even with his goggles he squinted.

The "Flyer" was just its length ahead at the half-way point, but the "Swifter" was gaining. There was little cheering. Walter's eyes were fixed on the forward point of the "Flyer's" front sled. That was his goal.

Slowly he crept toward it; then faster. They were gaining. Just as they darted past the little group of Walter's folks, the bobs were even and across the finishing tape went the "Swifter," half a length ahead. The real contest lay now between the "Dart" and the "Swifter."

As the two teams went up the hill for the last time, their friends cheered; but the boys' hearts were heavy, and Walter trembled from head to foot as he took his seat. The "Dart's" crew were all smiling.

At first it seemed as though the "Dart" were gaining, but, like a bulldog, the "Swifter" clung to its side. The tense crews watched each other. Neck and neck, not more than two feet apart, the bobs passed the half and then the three-quarter marks.

The strain was killing. Every muscle in Walter's body ached. A lump rose in his throat, and in his anxiety he pleaded frantically with the "Swifter" to win. As if she knew what was expected of her, the bob suddenly drew ahead and won the final heat by a few feet.

WASHINGTON AND HIS LITTLE HATCHET

"Never mind the cherry tree, George, but get busy with this bunch of limbs."

— Evening News (London)

THE SUNDAY SCHOOL

JANUARY 29.

Elijah in Naboth's Vineyard, 1 Kings 21: 7-10, 16-20. Golden Text—Num. 32: 23. (Rev. Ver.)

Time—The reign of Ahab, B.C. 876-854.

Place—Jezreel in the plain of Esdraelon.

Connecting Links—At the command of God, Elijah returned from Horeb to the land of Israel (ch. 19: 15) and there he found that Ahab had perpetrated a great injustice on one of his humble subjects. Adjoining Ahab's summer palace in Jezreel was a vineyard belonging to Naboth. Ahab was anxious to secure this vineyard that it might round off his own property. Among the Israelites, however, there was a limit to the free disposal of property especially if it were a patrimony. See Num. 36: 7. An inheritance on which one's forefathers had lived and been buried for generations was regarded as sacred and inalienable. So when Ahab proposed the purchase of the vineyard, Naboth answered "The Lord forbid."

1. A Wicked Plan, 7-10.

V. 7. **Dost thou now govern?** "Are you such a weakling that one of your subjects can foil your desires?" Jezebel, coming from a foreign principality,—Tyre—not understanding the sturdy independence of the Israelites, believed in a despotism which did not consider the subject's rights. **Arise and eat bread.** His covetousnous being denied its satisfaction, he had gone to bed like a spoiled child and refused to eat. See v. 4. **I will give thee, etc.** Evil is resourceful. All through his career Ahab appears to have been a weak man, completely under the domination of his queen, who was a sort of Lady Macbeth.

V. 8. Jezebel took the matter in her own hands and wrote letters, probably from Samaria, the capital, rather than from Jezreel. **Sealed . . his seal.** The seal was a ring with a precious stone on which was engraved a figure or inscription. Documents of state were stamped with the king's seal to attest that they were official. In the New Testament (Eph. 1: 13) the believer is said to be sealed with the Holy Spirit as a mark that it belongs to God. **The elders and . . . nobles.** In all likelihood these are convertible terms denoting the sheikhs of the village. As heads of the leading families they were the magistrates who administered justice. That Jezebel appealed to them shows that a man had to be tried in a local court before his fellow-citizens, rather than in the king's court in Samaria.

V. 9. **Proclaim a fast.** A fast was a religious usage, a spontaneous expression of grief or self-abasement, and as such frequently a mark of repentance for wrong-doing. See Jonah 3: 5-9. Jezebel proposed that the Jezreelites should assume a mimic solemnity and mourn over the wrong done by one of their number, Naboth. Thus she degraded a religious custom to an evil purpose. **Set Naboth on high;** not in the seat of honor, but in the prisoner's box to make his shame conspicuous.

V. 10. **Two men.** According to Jewish law there had to be two witnesses of a crime before a man could be condemned to capital punishment. See Deut. 17: 6 and, 19: 15. **Sons of Belial;** a Hebrew slang phrase denoting "good-for-nothing fellows" or "worthless scoundrels" and hence "with no character to lose and easily bribed for any evil purpose." **Thou didst . . . the king;** denounced both divine and royal authority and hence acted as an outlaw. **Carry him out.** The Hebrew court of justice was usually held in the open square by the gate of the city; a condemned man was led thence outside the city limits for execution and burial. **Stone him;** the method prescribed by Jewish law for capital punishment.

II. A Well Merited Rebuke, 16-20.

V. 16. **When Ahab heard.** He and Jezebel were in Samaria when the murder took place in Jezreel; there was something despicable and cowardly in allowing others to work out his evil desire. **Ahab rose up, etc.** With Naboth out of the way there was nothing to hinder him from satisfying his covetousness. But, as Conrad remarks in his "Lord Jim," "You must touch your reward with clean hands, lest it turn to dead leaves, to thorns in your grasp."

Vs. 17, 18. **The word of the Lord.** Contrast this with the letters of Jezebel. After all it is this word of the Lord that makes it safe to live in the world. **Meet Ahab king of Israel.** Think of the courage Elijah must have had to rebuke a king and snatch his coveted prize out of his hands. Elijah embodied the power of righteousness. **He is in the vineyard.** Consider how dramatic the meeting was to be. It was to take place on the very ground that was stained by Ahab's crime. Ahab went out to take possession of a garden of herbs, and there he stands face to face with righteousness, face to face with honor, face to face with judgment." (Joseph Parker).

V. 19. **Hast thou killed?** Ahab may have been comforting himself with the thought that he at least had not murdered Naboth but this pointed question reminded him that he was ultimately responsible for it since he had sanctioned it. **Taken possession?** If Ahab had disapproved of Naboth's murder he might have shown it by refusing to take the vineyard. **Where dogs licked the blood.** In eastern cities the dogs are public scavengers and are here pictured as licking up the pools of blood which had oozed out of the murdered Naboth. This loathsome fate was also awaiting Ahab.

V. 20. **Hast thou . . . mine enemy?** In chs. 17 and 18 Elijah appears as "the troubler of Israel," but here as the personal enemy of the king. He is the thorn in Ahab's side, nettling his guilty conscience. But he mistakes Elijah when he calls him an "enemy." Had he but known it, Elijah was his best friend. "The faithful rebuker, the merciful inflictor of pain, is the truest friend of the wrong-doer." Sin also makes us mistake the character of God, it fancies that he who loves us and watches over us is our enemy.

Ahab had thought that the day when he would take possession of the vineyard would be one of unmixed joy; instead, it became one of unrelieved doom. Elijah proceeds to announce his punishment; on account of their delinquencies, both he and Jezebel are to be cut off. Upon Ahab's show of repentance, the sentence is modified. He is allowed to live out his life, but the punishment is to be meted out to his son. The kingship of Israel is to pass out of his house and be given to another.

Application.

Ahab now appears before us in another role. We have seen him as the protector of the worship of Baal. He appears now as an ugly and repulsive illustration of the sin of covetousness. Covetousness seeketh her own, and her own only. Dryden said: "Had covetous men as the fable goes of Braireus, each of them one hundred hands, they would all of them be employed in grasping and gathering, and hardly one of them in giving or laying out." Jesus uttered one of His sternest warnings against the spirit of covetousness. "Beware of it," He said. We may covet another man's house, or position, or throne, or fame, or education, as well as his land. Covetousness grows by what it feeds on, just as one becomes more and more thirsty by drinking salt water. Ahab had plenty, but he set his heart on Naboth's vineyard, and that was his undoing. The doom which Elijah pronounced against Ahab was a terrible one. The dogs, declared the prophet, would lick the king's blood in the vineyard of Naboth. His family should come to untimely ends, and Jezebel his queen would perish miserably.

We should not press this doctrine of retribution too literally. The wicked do not always meet with suffering or even disgrace. Often they escape detection by their fellowmen, or prosper in spite of it. None the less the decay is within, and the process of spiritual death is at work in the heart.

The Farm Work Shop.

Before preparing land, see that the plow points and disks are sharp. A good grindstone run by a small engine will do the work in quick time. Do not run the stone faster than you would by hand.

Three good saws—hand-saw, buck-saw and cross-cut—are needed on every farm. An old saw for timbers with nails in will save the good saw.

When a screw breaks, the easiest way to remove it is to use a screw extractor. Just drill a hole in the broken screw, insert the point of the extractor, turn the screw out on its own threads.

Salty grease and bacon rinds do more harm than good when used on saw blades. After using, put the saw in a dry place. Vaseline or a good grade of machine oil will prevent rusting. Hang the saw so the blade is not bent.

We have electric lights in the house, barn, granary and blacksmith shop. We have a small light plant of our own, and we like it very well; it has been installed for nearly a year. We have a yard light which we find very convenient in going to or coming from the barn, or in unhitching a team at night. All in all, we like electricity very much.—M. B.

Engineers have a rule for quickly estimating water power, which is quite simple. Multiply the number of second-feet by the fall of water and divide by eleven, which will give the approximate horse-power on an eighty per cent. efficiency basis. The term "second-feet" is the number of cubic feet per second passing a given point.

One of the best cleaners for the windshield is a piece of untanned sheepskin, six inches square, with short clipped wool. By dampening the wool and rubbing this over the glass, enough oil will remain, in an invisible film, to prevent rain or frost from adhering to interfere with the driver's vision.

Chalk Up One for Testing.

There's a difference in cows. This is shown clearly in figures secured from a cow-testing association:

Pounds of milk	7,300	3,600
pounds of fat	320	154
Income from milk and fat	$164	$98
Value of feed eaten	$ 95	$85
Return over feed cost	$ 70	$13

The high-grade cow was sired by a good purebred bull; the scrub cow was not. Chalk up a score for testing and one for the use of purebred sires.

Well grown is half sold.