INCREASING SPRAYING EFFICIENCY

Some Details That Make a Great Difference in Results.

BY EDWARD HUTCHINS.

As the spraying season is here a few important essentials to successful work may be noted. Several things are necessary in order to secure efficient and satisfactory results. The proper material must be applied at the right time and in the proper manner. Very much depends on the last, and it is of this we wish to write at this time.

A good pressure with the pump is an important matter, and there are a number of things affecting this that are so small as to escape the notice of one who is not familiar with all of the details of the operation. For, if from any cause the pressure is too low, a shower is produced instead of a fine mist, and the results are not so good. Nor are all parts of the tree reached, as the carrying capacity is much less. If a person has a hand pump equipped with the proper nozzle, a pressure of eighty to 100 pounds may be obtained, and fairly good work may be done with such an outfit, but in commercial orchards power rigs are in general use, and with the quantiy of material these put out a much higher pressure must be maintained. Experienced orchardists agree, I think, that from 225 to 250 pounds is about right. Some think 300 pounds none too low, but my own opinion is that equally as good results are obtained with the lower pressure mentioned, and when it runs above 250 pounds the troubles with bursting hose and various leaks in connections and points, both in hose and pump, rapidly increase. Experiments have been made with pressures all the way as high as 800 pounds, and careful observations may show some economies in saving both in material and time, but with the ordinary orchardists these are too small to be very important, and such high pressures are hardly feasible.

CAUSE OF DECREASED PRESSURE.

But a characteristic of spray rigs generally is that while the pressure may be—and usually is at the start—all right, it gradually runs down, and the cause of this slow decrease is obscure. This is ordinarily due to two causes, both on account of wear, one in the pump and the other in the nozzle. The old style of pump, which is still used to some extent, has a single plunger out of sight and this is sure to wear and allow the liquid to flow past it, and in time allows the pressure to become too low for effective service, yet to a person not accustomed to such a machine, the cause of the disease is scarcely more than a guess. The stuffing box through which the plunger rod passes soon begins to leak, but this can be seen and the packing tightened, but not so with the plunger, which is inside of the cylinder and out of sight. When there is much fall of pressure this is usually the seat of the difficulty and it is necessary at once to take out the piston and renew the packing around it.

The style of pump with the plungers, usually two or three in number, in sight, and with the packing under a band around the plunger at the top of the cylinder are more reliable and more easily adjusted, as the leak can be readily seen and stopped, simply by screwing down the attachment for this purpose and without having to take the whole pump apart. It is a simple and easy task to keep these pumps from leaking. We have used one a whole season, and done a lot of work with it without so much as renewing the packing. If new packing is needed a strip of stout cloth, like bed-ticking, perhaps an inch wide, and folded, makes a good and durable supply.

WEAR IN THE NOZZLE.

Another cause of reduced pressure, and equally unsuspected, is the wear in the nozzle. The liquid flowing through the opening in the nozzle at a high pressure as it does, gradually wears this away and a larger difference in its capacity than one would suspect, is caused. It is a principle in mathematics that a square described on a given line is four times as large as one described on half that line. A two-inch square has four times the area of a one-inch square. The same principle applies to circles, and as the round opening in the nozzle wears away, its area increases very rapidly and allows the liquid to flow through much more freely. In this way the pressure is very materially reduced.

Nozzles are frequently supplied with an extra disk, but these have openings of different sizes, and with the ordinary power pumps the smaller openings are too small to deliver sufficient liquid and besides, the smaller capacity and less work done, the excess of liquid passes through the relief valve and causes extra wear there. I have reduced the size of the opening in disks having a single round opening, by laying it on an anvil or flat iron surface and striking it with a hammer havng a round head, or with a punch, and then running a small drill through it to make it round and smooth, as the irregular hole does not deliver so perfectly. The proper size for the ordinary pump is about three-thirty-seconds of an inch. A small drill of this size only costs a few cents.

A part of the efficient power spray rig that is almost essential is the spray gun. It is short and much more convenient than the long spray-rod, and is adjustable, giving either a wide spreading spray, which is better for small trees, or may be changed to a long, slender column that has greater capacity and reaches the large trees more thoroughly. Most of these, too, are supplied with a needle that forces obstructions out of the opening in the nozzle and prevents clogging.

LEAK IN RELIEF VALVE.

Still another leak that sometimes takes place and reduces the pressure is in the relief valve, although this is not so common perhaps, as that in the old-fashioned plunger, and the wear in the nozzle, particularly if the amount of liquid delivered is properly adjusted. If more material passes through the pump than the nozzle will deliver, the excess must go through the relief valve, and this causes wear. Sometimes considerable trouble is caused in this way, especially if one hasn't had much experience with spray rigs and has not learned all about these things. The hole in the nozzle should be the proper size to deliver about all the pump supplies and still keep up the pressure, and, of course, this means that the pump should be bought of the proper capacity to meet the buyer's needs. A larger pump is required to run two leads of hose than if the work is to be done by one person. This can be governed to a considerable extent, however, by regulating the speed of the engine. The wearing parts of relief valves can usually be renewed at small cost, but this is a matter that requires attention. If the pressure runs down, and there is no leak past the plungers, and the opening in the nozzle is not too large, then the difficulty may be looked for in the worn parts of the relief valve.

KEEPING ADJUSTED.

Spray rigs, like all complicated machines, need to be properly adjusted in order to do efficient and satisfactory work, and in doing rapid and thorough spraying, it is necessary that the proper pressure be maintained. I have seen men attempting to spray when only a coarse shower was being delivered that only reached part of the trees, and they didn't seem to comprehend that everything wasn't going all right. And men have complained that their rigs wouldn't keep up the pressure and they couldn't find out what the trouble was, and when a worn nozzle was suggested, they never had thought of that.

WEAR ON PUMPS.

Of course, pumps, like all other machines, wear out in time and must be replaced. I used to have the pump renewed at the machine shop in two years, and in another two years had to junk it, but with those we get lately much more wear may be obtained. But with all of them the pressure gradually runs down and it is important to look after this. The first place to look is in the pump. See that the plungers are working without any leak. If there is none here, then see if the opening in the nozzle is not too large. If reducing this does not raise the pressure, then look after the relief valve and see if the liquid is not flowing through this.

What Are You Worth?

How much are you worth? To the most of us, the answer is very puzzling, and perhaps of a variable quantity conformable to the day. But, according to a professor of chemistry in one of our universities, if the average-sized man were divided into the elements of which his body is composed, there would be water enough to wash a pair of blankets, iron enough to make a ten-penny nail, lime enough to whitewash a good-sized chicken coop, phosphorous enough to make a hundred matches, and sulphur enough to kill the flees on a medium-sized dog.

At the store where these minerals are sold, they could be purchased for about ninety-eight cents. In the human body, though, these elements are so bound together with a thinking brain that the value of a person is not to be estimated in dollars and cents.

But do we not often think of our bodies as machines, requiring food as fuel to keep them running, to execute our daily tasks, giving little or no attention to the fuel as long as it is satisfying? Nutrition specialists have proven, though, that the food with which we refuel our bodies is relative to the efficiency with which we execute our daily work. The same specialists also tell us that our daily diet is most often deficient in lime, iron, and phosphorus.

It is one of mother's big jobs to see that her family is properly fed, that they may hold fast to that most desirable quality, health. The year is at the spring, the season of lagging appetites, and perhaps at no other time, is the family food question deserving of more careful attention by mother and all the members of the family.

The little chicks are not one bit better off where you insist on feeding them before they are forty-eight hours old. In fact, their chances for developing into useful birds are much enhanced by such delay.

"The character of a people is largely shaped by the homes in which they dwell. The profoundest influences of early childhood are those of the family circle."

CHIPS OF THE OLD BLOCK FOR CANADA

Here are a few examples of the class of settler that is being brought over to Canada by the Canadian Pacific Railway. Of the best British stock they look the part and a finer crowd of children and young people could not be found anywhere in the world. Catch them at this age and they are complete Canadians in a few years. These are the type of immigrant that Canada is hungry for and is always glad to have. Above are shown the Nicoll family.

Farmers generally have not yet come to know the value of a sharp pencil in making the various lines of farming profitable.

The cow that makes the most butter from a given amount of feed is the most profitable cow for the practical butter-maker to keep.

Farmers should learn to tie knots appropriate to the task at hand. Good knots are those which can be easily tied, are secure, and easily undone.

BIPPO'S MISTAKE

BY MARJORIE VANCE.

It was Gertrude's party that caused all the trouble. They had all had a wonderful time, and everybody was happy. Bippo was so happy that his short tail thumped the floor very fast and hard.

For a whole year Bippo had been petted and loved by his little mistress. At her last party Uncle Jim had brought his finest airdale puppy as a present for her. He was just a little brown curly ball, then, and Gertrude had squealed with joy when she saw him.

It had been Gertrude who named him Bippo, just for fun.

So they had been very happy together, playing and having good times. Bippo loved Gertrude more and more every day.

And then the terrible thing happened. After the party was all over and the children had gone home, who should come and ring the front door-bell but Uncle Jim, just as he had come the year before to bring Bippo himself. Under his arm was a long box.

Bippo leaped up and down and yipped welcomes to Uncle Jim. Gertrude hugged his hand and begged to see what was in the box.

"Now how in the world did you know there was something for you in that big box?" teased Uncle Jim. "All right, my dear. Here you are, and I hope you'll like it as well as my last present." He patted Bippo's head merrily.

Bippo struck a curious black nose down into the paper wrapping inside the box and sniffed his disgust. Then he walked off to a far corner and lay down.

Gertrude drew out of the box the most gorgeously dressed Indian doll with feathers and beads on her leather dress. Such a doll! Gertrude was so happy she threw her arms around Uncle Jim's neck as he sat down on the floor beside her.

"Oh, Uncle Jim!" cried Gertrude, "It's the nicest present I ever had."

All by himself in the corner, Bippo made believe he was asleep, but he kept opening one eye to peek.

Poor Bippo! Every day he would wait for Gertrude to come home from school. Then there would be one happy minute while she raced with him to the door. But inside the house it was all changed. Once inside, she ran to find Pocahontas, the new Indian doll. And then they went without another thought of Bippo.

He grew lonesomer and lonesomer all by himself. Finally one day when she was away at school, Bippo made a bad mistake. As he lay on the rug in the playroom, he could see Pocahontas sitting propped up against the wall where Gertrude had left her.

Bippo knew in his faithful little heart that before Pocahontas had come he had all Gertrude's love and all her company. Bippo cocked his shaggy head on one side and looked at the doll. There was nobody else upstairs, and Gertrude wouldn't get home for quite a while. All of a sudden Bippo made a rush toward the doll, grabbed her dress in his mouth, and ran with her out of the room. He took her into the guest room and into the closet. Then he dropped her.

When Gertrude come home from school that afternoon, Bippo followed her to the playroom. She hunted all over the room in vain for Pocahontas. Mother tried to comfort her.

"Perhaps you didn't leave her in the playroom, dear," she suggested. "Are you sure?"

"Yes, I know I did, Mother. She was right here leaning up against the wall." Gertrude pointed, tearfully, to the spot where the doll had rested.

Bippo knew somehow that they were talking about her. When they pointed to a spot on the wall he crawled to a corner unhappily. But when he saw tears in Gertrude's eyes, and heard her crying so pitifully, he was very sorry indeed, for he knew she was crying about Pocahontas, and it was his fault. He lapped her hand with his pink tongue and poked his nose under her hand.

But she was so unhappy that she hardly noticed.

Poor little Bippo! There didn't seem to be any way to make her love him again. He had not often been naughty before, and no one knew that he had now. If only she would play with him again. But he hadn't yet learned that the way to make people love you is by being good instead of naughty.

But seeing her so unhappy made Bippo very much ashamed of what he had done. He wanted her to have Pocahontas back again, if only she would stop crying.

He teased her to follow him, barking and running back and forth until she went with him into the guest room, and peered into the dark closet. Bippo plunged into the corner and backed out meekly, stubby tail drooping, with Pocahontas dangling in his mouth. He dropped her at Gertrude's feet very gently, and looked up with pleading eyes.

With a squeal of joy, Gertrude picked up the lost doll, and hugged it tight in her arms. Then she looked at Bippo who was lying in the corner looking very lonesome and sad. All of a sudden she remembered how he had been left out of all her fun ever since her party. She knew he had had his punishment by being so unhappy. So she didn't say a word about the mischief he had done.

But after supper, the three of them played together until bedtime, Gertrude, Pocahontas and Bippo, who could hardly keep still a minute he was so happy, and after that they always played together, all three.

Let the Water Walk.

Running water indoors is still just a dream on most Canadian farms. Five years ago, when the last census was taken, nine out of ten farmers figured it would cost too much.

Probably half of them figure the same way to-day. Yet a workable water system can often be installed at less than the cost of a new binder. And there is hardly a farm which cannot afford some improvement over the woman-killing method of floundering with heavy buckets, year in and out, to and from the well.

One farm wife trudged thousands of miles before it was found that a hundred feet of pipe made it possible to move the pump into the kitchen and let the water do the walking.

We are just wondering if Mother Nature, too, has become careless in her attitude toward the law, and slipped another winter in the place of spring.

THE CANADIAN HOMEMAKER

A series of weekly articles covering

PLANNING . BUILDING . FINANCING
DECORATING . FURNISHING . GARDENING

Copyright 1926.

A BEAUTIFUL BORDER OF ANNUALS

By Henry J. Moore.

One of the many ways in which our home surroundings may be made beautiful in summer is by sowing the seeds of annual flowering plants in borders at the sides of the lawn or by planting out annuals which have been raised indoors. It is however with the former method that we will deal in this article.

The position of the border will be the first consideration. It should be open and sunny and so located that water will not stand for any length of time, that is, it should not be in a depression from which water cannot drain. A freedom from the roots of trees and shrubs is also desirable for annuals will not grow well where these mat throughout the border.

The soil most satisfactory for the growth of annuals is a porous sandy loam, one which can easily be worked. Heavy clay soils are not satisfactory, but where they exist may be made so by the addition of stable manure or other organic matter such as leaf soil. Upon the manner in which the soil is prepared to receive the seeds will largely depend success or failure. It is better to use a fork when preparing the border in spring than the spade, as with the fork the soil may be broken much more evenly, a condition which is necessary so that the fine roots of the annuals may readily penetrate and the growth of the plants be not checked.

If the soil has a reasonable residue of humus (decaying organic matter) from last year's application, it will not be necessary to apply any manure to the border in spring. If, however, the soil does not contain enough it will be necessary to apply short well rotted manure and to fork it in. Having forked the border the next step is to rake the surface very finely with a steel rake and to remove stones or anything likely to obstruct the growth of the plants. The finer the surface soil down to a depth of three or four inches, the better will be the growth of the annuals and the more beautiful the border.

With the border so prepared the procedure is now to mark off the areas in which to sow the seeds. With a pointed stick make more or less circular patches as shown on the plan and within the limits of each circle sow an individual variety of seeds; thus in one we would have Phlox Drummondi and in another Marigolds and so on. There is no reason however that we should not have two or three patches of one kind of annual, if so, these should be distributed widely apart so as not to create monotony at any part of the border.

The taller annuals should be sown at the back of the border, those which are half tall or intermediate in height in the middle and the dwarf kinds be sown along the front. Annuals, say, which are more than two and one half feet in height, may be considered tall, from fifteen inches to two and a half feet—intermediate, and from fifteen inches downward—dwarf.

If it is your desire to make a bed of annuals in your lawn and not a border at the side, the procedure will be different, as the annuals should properly be about the same height throughout the bed, and might even be sown with an individual variety. However it is not proper to cut up your small lawn areas and it will pay you to make a border rather than a bed.

The seeds in the patches should be sown evenly and thinly and should be covered very lightly with fine fertile soil by means of the rake or preferably by screening the soil over them. One eighth to one quarter inch will be sufficiently deep to cover the seeds except the larger ones such as Sweet Peas which may be covered about one inch deep.

Generally in latitude 44 deg. the time to sow annuals is during the last two weeks of May in Eastern Canada. On the west coast about six to eight weeks earlier. If the soil is at all dry it should be carefully watered as soon as the seeds are sown by means of a can with a fine sprinkler. The surface of the soil, however, should not be flooded to disturb the seeds.

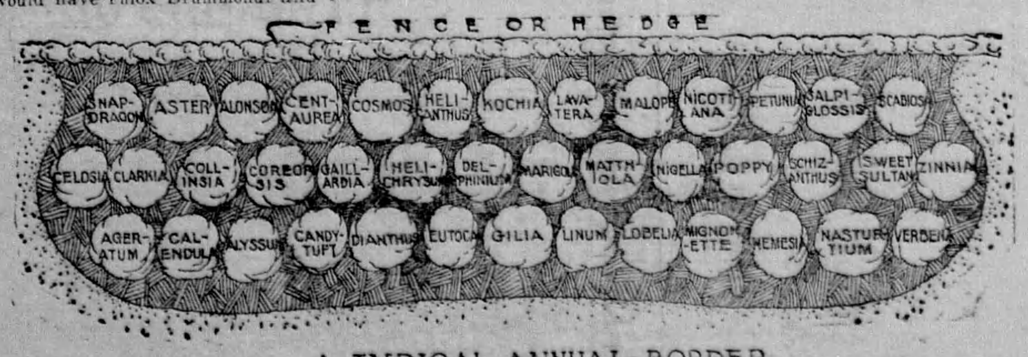
After germination and when the seedlings are about two or three inches high they should be thinned out distances apart according to their ultimate height largely between the limits of four to twelve inches apart. The greater spacing being allowed in the masses nearer the rear of the border as the plants are of a tall and more spreading nature than the dwarf ones along the front.

The following list of annuals will be satisfactory for the ordinary border such as may be found in the average garden.

For rear of border—Snapdragon in any color, the taller kinds. Aster, tall kinds, any color. Alonsoa, tall kinds, any color. Centaurea (Blue bottle), any color. Cosmos (Mexican Aster), not however the very tall kinds, any color. Helianthus (Sunflower) only kinds which do not grow more than about 3½ ft., however, are desirable for a small border. Kochia (Summer Cypress). Lavatera (Tree Mallow), white, rose. Malope (Mallowwort), rose, white, pink. Nicotina (Flowering Tobacco Plant), white, rose, carmine, crimson. Petunia, tall, to be trained to pieces of brush. Salpiglossis, many colors. Scabiosa (Pincushion Flower) varying from crimson to white through many beautiful shades. Sweet Peas.

For middle of Border—Acroclinium (Everlasting). Celosia (Feathered Cockscomb) yellow red. Chrysanthemum, white, yellow, orange, scarlet, rose. Clarkia, pink, orange, scarlet, white. Collinsia, purple white, violet, rose. Coreopsis (Calliopsis) tall kinds, red, orange, yellow. Eschscholtzia (Californian Poppy), rose, yellow, scarlet, crimson. Gaillardia, white, rose, lilac. Helichrysum (Everlasting), many colors. Delphinium (Larkspar), white to lilac, mauve, purple. Marigold, African, orange yellow. Matthiola (Stocks), all colors. Nigella (Love in a Mist), blue, purplish blue. Poppy, any color. Schizanthus (Butterfly Flower), flowers blotched gold brown, white yellow, purple. Sweet Sultan, yellow, white, rose. Zinnia, yellow, orange, shades of purple red.

For front of border—Ageratum, blue, white. Alyssum (Sweet Alysson) white, bluish lilac. Snapdragon, only dwarf kinds, any color. Calendula (Pot Marigold), rose, scarlet, purple, yellow. Candytuft, crimson blue, carmine, rose, lavender. Dianthus (Annual Pinks), colors various. Eucharidium, rose, bluish white. Eutoca, blue. Gilia, lavender. Mesembryanthemum (Ice Plant), Leptosiphon, white, scarlet, rose, lilac. Linum (Flax), blue, yellow, crimson. Lobelia, blue, cobalt, white. Marigold, French, yellow, orange. Mignonette, copper, brick red. Nasturtium, dwarf, any color. Nemesia, rose, purple, pink, carmine. Phlox Drummondi, color various. Portulaca, many colors. Verbena, blue purple, white, rose.



A TYPICAL ANNUAL BORDER

BEAUTIFUL HOMES

The MacLean Builders' Guide gives valuable data and aids in solving problems relating to planning, building, financing, decorating, gardening and furnishing. Profusely illustrated. Homes of all types shown in various sections of the country. Send Twenty Cents for a copy. Questions answered. MacLean Building Reports, Ltd., 344 Adelaide St. West, Toronto.