The Farm Water Supply.

UTILIZING THE WATER POWER.

It is surprising that a larger use is not made of the ram system of raising water to a higher level on many farms, when there is an ample supply in a stream running at the lower part of the property. Whether for house or garden purposes, a proper water supply is essential. In order to make the use of a hydraulic ram possible, there must be a slight fall and a good supply of water, and it has the great advantage over the windmill of working continuously, whereas the operation of the windmill is subject to the prevalence of some motion of the air. If you have a supply of water to which you can connect an engine, placing it at a level of 2 ft or more below the surface of the water in the supply, and drain away the power water that escapes from the engine, you will thereby get a constant flow of water delivered to the higher point, without any attention or expense, except the replacing of a valve once in about 2 yrs.

The improved hydraulic ram, a cross section of the interior of which is shown herewith, will pump 30 ft high for every foot of fall up to a hight of 575 ft, and can be had of a capacity of 175,000 gal per day. Considering the ordinary hydraulic ram without regard to the double supply feature, suppose the opening at B to be closed. The valve at B being open, the water from the source of supply at more or less elevation above the machine flows down the drive-pipe A and escapes through the opening at B until the pressure due to the increasing velocity of the water is sufficient to close the valve B. At the moment when the flow through this valve ceases, the inertia of the moving column of water produces the so-called ramming stroke, which opens the valve at C, and compresses the air in the air chamber D until the pressure of the air plus the pressure due to the head of the water in the main is sufficient to overcome the inertia of the moving column of water in the drive pipe.

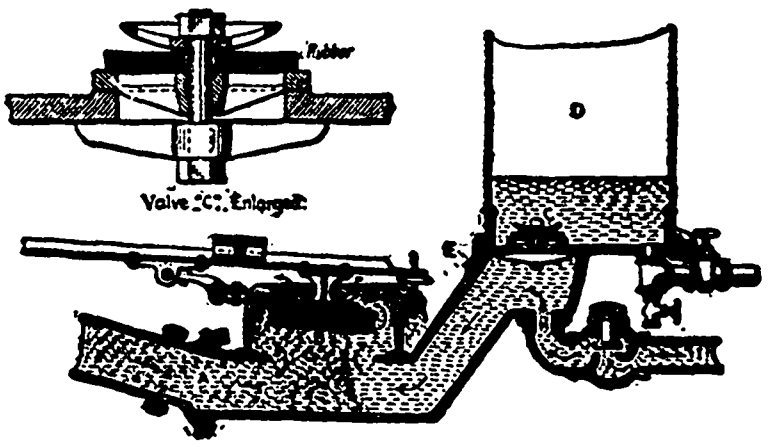
This motion may be likened to the oscillation in a U-tube. At this instant the column of water in the drive pipe has come to rest, and the air pressure being greater than the static head alone, the direction of motion of the moving column is reversed and the valve C closes. The water in the drive pipe is then moving backward, and with the closing of C a tendency to a vacuum is produced at the base of the drive pipe; this negative pressure causes the valve B to open again, completing the cycle of operations. At the moment of negative pressure, the little snifting valve E admits a small quantity of air, and at the following stroke this passes into the air chamber, which would otherwise gradually fill with water, the air being gradually taken up by the water.

In many machines the mistake is made of making the waste valve B sufficiently heavy to overcome the static head of water in the drive pipe. In fact, most writers on this subject, including the Encyclopedia Britannica, state that the weight of the waste valve B must be greater than the pressure of the statical head of water on its under side, so that it may open when the column of water comes to rest. In the machine which we are describing this would be practically impossible on account of the large area of the opening at B.

In this machine, the valve B is made as light as is consistent with the necessary strength; the negative pressure at the end of the stroke is relied upon to open the valve. With the largest size of these machines, this valve is 15 in in diameter, and with a head of 5 ft, which is a common head for use with hydraulic rams, the static pressure on the under side of this valve is 553 lbs; it can be seen that the great shock of a valve of this weight would rapidly destroy the valve and its seat.

The waste mechanism of this engine consists of a large port with flat ample opening and a large rubber valve with a balance counterweight and spring seating, removing almost entirely the jar of closing. The valve C in the air chamber consists of a rubber disk with grilled ports and convex seats, fastened at the center and lifting at the circumference, as shown. The effort is to transfer the power from the shock of the driving water through to the air cushion with the smallest possible amount of friction and jar.

After the closing of the valve C, the pressure of the air in the air chamber forces the water in the air chamber out into the delivery pipes. With this engine the manufacturers claim to elevate water 30 ft for every foot of fall in the driving head; the machine is built in capacities as high as 175,000 gals per day, and the efficiency of 82 per cent is claimed. The most important detail in which this style of an engine differs from the ordinary hydraulic ram is the waste valve. It will be seen by the illustration that the counterweight on the projecting arm of this valve permits the adjustment of this valve to suit varying heads and lengths of drive pipe. By adjusting the counterweight so that the valve is nearly balanced, the valve comes to its seat very quickly after the flow past it begins. The result is that the ram makes a great number of short, quick strokes, which are much easier on the mechanism than slower and heavier strokes. Of course the stroke must be sufficiently powerful to act efficiently in overcoming the head in the delivery pipe. The adjustable weight permits this to be effected with the greatest nicety.



An Improved Hydraulic Ram.

When a pipe is attached at I, the engine is termed double-acting; spring water or that which is purer than the water used to drive the engine may then be supplied through I, and by a proper adjustment of the relative flow of the impure driving water, and that of the pure supply, the engine may be made to deliver only the pure water into the mains. This method is used where the supply of pure water is limited.

White Blast of Onions is so called from the fact that the tops are prematurely whitened, and become wrinkled and shriveled, due to the attack of thrips. The insect passes the winter months in matted grass, among old weeds and other rubbish, as well as among cull onions and refuse that have been left over in the fields in the fall. It makes its way from grassy margins or ditches to the rows of onions adjoining. It winters over in the piles of culled onions and refuse in the fields, and begins its work there, spreading from thence outward. Wherever the grass and weeds along ditches can be rooted up and destroyed it prevents the harboring of this pest. Wherever the old, dry grasses and weeds, along the margins of onion plantations, can be burned, the effect will be to destroy myriads of the pest, and to prevent their breeding the coming season. With frequent, drenching rains, there is not much likelihood of a severe outbreak, but in case of drouth, the insect is likely to work more or less serious injury. A spray of 1 lb whale oil soap dissolved in 8 gals water will destroy the pest, and the use of this mixture is recommended on the first appearance of the insects in the fields. At time of first appearance it will probably only be necessary to treat very small areas along the margins of fields, or small, isolated spots in order to permanently check their increase.

The Hester Squash is a type of Sibley's Hybrid and is of a golden yellow color. For many years this squash has been considered a standard for home use. New Hester squash possesses all the good features of the Sibley. The Hester is earlier than the Sibley, but it is a wonderful keeper and under proper conditions it will keep in sound condition until late in spring. It is one of the finest squashes for pies.—[S. L. Watkins, El Dorado Co, Cal.

The Garden.

A MARKETING BOX.

In making picking and shipping boxes, for ends, take good dressed pine lumber ½ in thick and 8 in wide. Cut so the upper edge will be 9¾ in long and lower 7⅝ in. For sides, use lumber 8 in wide and ⅛ in thick. Cut them so the upper edge will be 19 in long and the bottom edge 17 in. Cut bottom of same stuff slack 17 in long. Use wire nails 1¾ in long. Nail on outside of box in center a strong basket handle, using ¾ in wire nails. Such a box will weigh 3 lbs, will hold ½ bu without heaping, will last as long as five common baskets and cost but little more. They are better than baskets for shipping. Make shipping covers 8 in wide, 3-16 in thick, and cut off square 18¾ in long. Cut two pieces 7⅝ in long from a ½ in square strip, bevel so they will fit exactly inside the box and close to ends. They should fit in so the top surface will be flush with the sides and ends. The cover is to be nailed on to these pieces with ¾ in wire nails driven through and clinched, so that when the cover is put on it will show the contents ⅞ in on each side. This space will also give all the ventilation required. If desirable to show the fruit more or have more ventilation, use four slats ¼ in thick and 1 in wide instead of a close cover; nail on so as to leave all spaces the same width. These boxes may be piled 10 high and do not give as baskets in handling.—[S. H. Mitchell, Perth Co, Ont.

The Turnip Aphis appears about Aug 1. When thinning the crop you can see where the aphis has been at work. For the fly, use a solution of whale-oil soap, 1 lb in 8 gals water, or a kerosene emulsion. Much good can also be done when thinning. Whenever a colony of aphides are found, cut out the infested plants, pull a little earth over them and with the foot press down the soil, thus killing the insect.—[Dr James Fletcher, Ont Exper Farm.

The Beet Army Worm appears in Aug and Sept. Paris green, london purple or white arsenic, applied dry or in solution, will destroy the caterpillars. Small beets pestered with caterpillars should be dusted before sunrise with a mixture of one part by weight of paris green or london purple with 20 parts common flour. Make a cheesecloth sack 5 inches in diameter and 10 in deep, fill with the mixture and walk along a row of plants, shaking the sack over them. For large beets, use a spray pump, 1 lb green or purple to 100 gals water, with 2 lbs fresh lime for each pound of poison.

The Common Squash Bug or stink bug can be destroyed only by hand-picking, destroying the eggs and by trapping. Bugs may be trapped by placing about at intervals on the ground boards, shingles, bark, or similar material, to which the insects will be attracted for shelter. Here they should be looked for and destroyed every morning during the early season.

A large portion of the subsistence of the family may and should be derived from the fruit and vegetable garden.

Never sacrifice health and convenience to ornamentation and display.

Orchard and Berry Patch.

MARKETING THE PLUM CROP.

In most cases experience has proven that plums, if shipped to market in 10-lb grape baskets, provided with handles, and put up in neat, presentable shape, will bring the producer a greater percentage of profit than if shipped in half-bushel or bushel crates or packages. A careful picker can fill the basket direct from the tree, but the usual plan is to pick into large receptacles, then, carefully sorting the plums, place in packages ready for market. This frequent handling removes a great deal of bloom from the fruit, which removal should be avoided as much as possible.

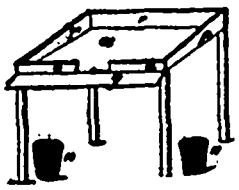


TABLE FOR ASSORTING PLUMS.

By the use of a single table as illustrated, plums and other similar fruits are easily assorted. The top of the table should not be over 2x2½ ft. The sides and back, r, r, r, may be 8 in wide at the back, tapering to 3 in in front; the front guards, c c, should be less than 3 in high, leaving a 6 in space between the inner ends; the slanting board, g, is 6 in wide. To operate it, place the fruit carefully upon the table, the assorter occupying a chair in front of the table, with a basket on his lap. Both hands can then be used in removing the leaves, limbs, damaged or imperfect fruit, throwing the refuse into baskets, s s, on the floor. The perfect fruit, or that intended for shipping, is rolled in front, and passes over the incline, g, into the basket. This table need cost but little, and may be made in as crude or elaborate a form as wished. In working, the elbows can rest upon the guards, c c, which will make the operation much easier. An ordinary table can be fitted with these simple appliances and quickly removed after the shipping season is passed.—[L. S. Yates.

The Currant Cane Girdler lays an egg in the new growth and then punctures the cane all around so that it breaks off and thus furnishes better condition for the larvae, which begin and work down in the pith, but no injury is apparent unless next spring when the canes begin to die after the leaves start. The simple remdy is to cut off an inch of the girdled cane and drop it on the ground. For the currant worm, use paris green until the currants are ⅛ in in diameter, and then hellebore, both in water, about one tablespoonful to the gallon of water. This pest comes on early and feeds and grows rapidly so that in about 10 days' time from hatching it is ready to go into the ground, and a second brood comes out, so that an early application is more effective. Spray with the bordeaux mixture and paris green until the berries are ⅛ in in diameter and do not use the bordeaux again until the fruit is gathered, because it would adhere to the bunches and injure their sale. Would not advise the use of paris green generally, as hellebore is nearly as effectual.—[Prof S. J. Maynard, Mass.

Liquid Air for Cold Storage is to be made at Los Angeles, Cal. There are 11,000 refrigerator cars run out of that city with fruit, each one of which requires 10,000 lbs ice for cooling, and which occupies one-sixth of the carrying capacity for storage. Liquid air, with its wonderful refrigerative power, will be used instead, and can be stored below the floor of the car between the wheels, so that the whole space in the car will be available for the goods shipped. It is claimed the cost of the liquid air will be only one-half that of ice. The trial of the system will be watched with great interest.

Marketing Apples—If I grew Ben Davis I should seek the general market, whereas if I grew Jonathan, Spitzenburg, McIntosh Red, Gravenstein Newtown Pippin, or others equally as good, I should seek the first-class hotels, restaurants and families. Taking one barrel, they will surely want more.—[G. T. Powell, Columbia Co, N Y.

No commercial orchardist should cultivate more than six or eight varieties of apples.