

sown broadcast, a peck or so more might be better. Large peas, such as the "Black-eyed Marrowfat," 4 to 4½ bushels per acre may be sown with good results; medium varieties, about 3 to 3½ bushels per acre. We would not recommend any particular varieties; we would select those most adapted to our soil, and which have succeeded best in the neighborhood on similar soil. And now, after all our trouble and care, our crop may be destroyed by insect foes; perhaps the worst of these is the "pea bug" (*Bruchus pisi*). This insect is well known to most pea-growers. The pea bug is quite different in its life-history from that of the common pea weevil, which simply injures a portion of the surface of the pea. *Bruchus pisi*, the adult beetle, deposits its little yellow eggs on the outside of the young pod early in the season. On hatching, the young larvae



DIANA MCKAY [2314] AND SONSIE LASS [2313].
Sweepstakes Clydesdale Pair.
OWNED BY D. & O. SORBY, GUELPH, ONT.

bore through the pod into the pea and feed there during the larval stage, eating away the substance of the grain to almost the outer edge, leaving a thin covering, and seldom, if ever, attack the germ. Hence, bug-eaten peas will grow, but are deprived of much of their nourishment, and produce a less healthy plant. The larvae pupate in the pea and emerge, some that fall, and some or most of them emerge the following spring.

These bugs can be destroyed, as many as remain with the grain; but those that escape from the grain are gone from our reach. We may escape their ravages to a certain extent by sowing a portion of our crop early. The bugs will be attracted to this before our later sown crop, and better, a later variety also will be ready for them. The early sown portion should be plowed under as soon as the pods are well formed and before they ripen. We will then destroy all the young larvae and many of the old bugs will die, having done their life's work. Our later sown crop will then be saved from the bugs—sometimes almost entirely. This is, perhaps, the best preventive measure we can adopt. Seed peas should be treated by some such methods as the following: We place our seed in air-tight boxes or barrels, and set a dish containing bisulphide of carbon on the peas, using about 1 oz. to 1 bush. of peas, cover up tightly, and allow to stand for about three days; the heavy, poisonous fumes penetrate all through the grain, and it is sure death to all insect life. Benzine, gasoline or coal oil may be used by mixing through the peas.

Another very effective method is to thresh the grain early after harvest, and subject the seed to water heated to 145° or 150° Fahr. This will completely destroy all the larvae or bugs and not injure the germinating qualities of the grain.

We may destroy a great many bugs by adopting these measures, but that is not enough. Farmers should co-operate in this matter in order to ensure complete success.
A. H. CHRISTIAN.
Ontario Co., Ont.

How to Build Concrete Hog Pens, Floors and Troughs.

To the Editor FARMER'S ADVOCATE:

SIR,—In building hog pens of concrete, the walls are built the same as described in one of my former letters on how to build walls. But as a usual thing the walls are only eight inches thick, which, I think, is sufficient.

In putting in floors for hog pens care should be taken to have a good grade to the floors, for the only objection I ever met with yet was that they were too wet, and where that was the case I always found that the floor was put in on the level, and as there was no chance for the water to get away—no soakage like a wooden floor—and if the pen was not cleaned every day the floors would be wet.

In order to lay a pigpen floor, drive a pin in the ground at each corner of pen where trough is to be, these pins to be on the level; drive two more pins at the opposite corners, and four inches lower than the first ones; then another two inches lower than these and next the tile which is built through the wall to allow the liquid manure to run through. The ground should be graded so as to allow four

inches for concrete floor—this is plenty thick enough. Put in the floors the same as I mentioned in my former letters on "How to Make Concrete Floors": The rough concrete 6 or 7 to 1 of cement, add the stone, then the last coat 3 to 1 of cement. By using a straightedge on these pins the floor can be made to a true grade. By having the floor raised enough so as to allow room for a gutter four inches deep and three or four feet square at the outlet, and the tile at bottom of this gutter to carry off the water, the floors will then always be dry.

After the floors are completed make a box of 2 x 6, and 14 inches wide on inside and the length required for trough. This box is to have no bottom. Place this box where trough is required. Now take a 2x4 and nail boards 6 in. wide on the edge of this scantling, and two inches wider at top. Place this core in center of box, so as to have an equal distance all around between box and this core; nail strips across both box and cone to keep them to their place. The top of the box next the pigs should have a small beveled strip nailed on inside, so as to leave a chamfered edge to trough when completed. Now make the concrete, one of screened gravel to one of cement, and quite stiff. Never put it in over 1½ inches at a time, and ram it firmly but gently between the core and box till it is filled. In four or five hours lift this core out and take the box apart, and you have a trough 6 inches wide at the bottom and 8 at top, and 6 inches deep, and if care is taken in the mixing and ramming of the floor and trough they will last for generations. In putting in these troughs never use any sand, always use gravel.

By taking a 2 x 6 x 3 feet long, and ripping it in two, so as it will be 6 inches wide at one end and running to a point at the other, and nailing them to the partition between pen and feed alley, with the big end down, and 14 inches apart over the trough, and nailing a 2 x 3 half way up lengthways between these uprights, so as to keep the pigs from pushing them off, every pig will be in a stall by himself so to speak, and will not run the whole length of trough while eating.

The partition between pen and feed alley can be made to swing so as to allow trough in feed alley till feed is put in, and by pulling a slide it will swing back to its place again.
NORVAL B. HAGAR.
Welland Co., Ont.

Artificial Fertilizers.

To the Editor FARMER'S ADVOCATE:

SIR,—I have been watching with much interest the discussion through your columns on the use of artificial manure, but don't think the writers have made it very plain, as they did not say what kinds they used. Last spring I used an old timothy sod, which I calculated was in poor condition, and as soon as I commenced harrowing I sowed broadcast 200 pounds of bone and potash to the acre, leaving three rows the length of the field, and could see no difference until husking, and then found more short, soft corn in those three rows than in all the rest of the field. The field, five acres, turned 145 bushels of ears to the acre. The soil was heavy sand loam. I tried the same on three acres fall wheat last fall; will know results after harvest. The half ton of bone and potash cost \$22.50.
Elgin Co., Ont. JAS. TODD.

Testimonials.

Joseph Martin, Wolseley, Assa.:—"I must say the more I read the ADVOCATE, the better I like it."

J. E. Littlehales, Saltcoats, Assa.:—"I am much pleased with the paper."
March 26, 1899.

George R. Thair, Glenboro, Man.:—"I do not see how I could do without the FARMER'S ADVOCATE."
February 28, 1899.

Walter Jackson, Holmfild, Man.:—"I am very well pleased with the FARMER'S ADVOCATE, and find it a very valuable magazine."
March 3, 1899.

Philip R. C. Pratt, Sunnymead, Assa.:—"I may take this opportunity for saying that I think your paper excellent, having taken it for nearly eight years."
March 10, 1899.

T. McRae, Brandon, Man.:—"I wish you all success in all the ways you are working to help the farmers in their places."
March 20, 1899.

Edwin Lister, Kenlis, Assa.:—"I have taken your paper seven years, and it is improving all the time. No farmer should be without it."
March 13, 1899.

John Nichols, editor of the Sun, Grenfell, Assa.:—"Allow me to congratulate you on the FARMER'S ADVOCATE. It is a growing power among the farming community, and full of practical up-to-date information on agricultural topics."
February 25, 1899.

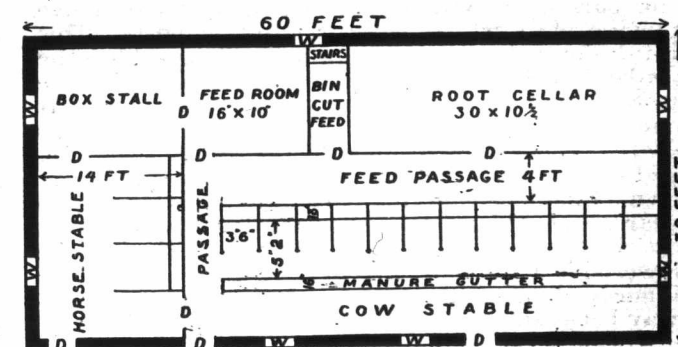
Harold D. Buchanan, Cottonwood, Assa.:—"Without the FARMER'S ADVOCATE a man might as well quit farming, unless he is content to learn farming by the hard school of his own experience. I therefore enclose you \$1.00, asking you to be pleased to continue your paper, with which I am more than satisfied."
March, 1899.

John George, Miami, Man.:—"Permit me to say that I am very much pleased with the engravings that you sent as premiums. They are very becoming, and when framed and hung up will beautify a farmer's home very much. But while farmers might get along without these beautiful pictures, I don't think they can get along as they should without a copy of the FARMER'S ADVOCATE every two weeks."
April 6, 1899.

Basement Plan for Small Barn.

To the Editor FARMER'S ADVOCATE:

SIR,—In April 1st number, Enquirer, Buffalo, N. Y., asks for barn plan 36 x 54. Mine is 30 x 60, so I will send you plan of it. It has stone wall under barn and Queenston cement floor in cow stable. The stalls are 3 ft. 6 in. wide, 5 ft. 2 in. from manger to drop. My cows are Jerseys. For Durhams would want to be 6 in. longer. The mangers are 18 in. wide and manure gutter 16 in. wide.
Ontario Co., Ont. GEORGE HEDGES.



BASEMENT PLAN OF BARN, 30 X 60 FEET, OWNED BY GEORGE HEDGES, ONTARIO CO., ONT.

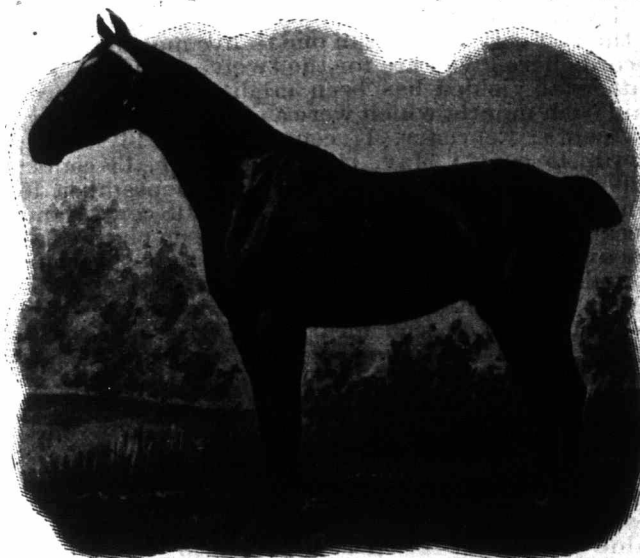
[NOTE.—If this plan were extended six feet wider the space could be well used by making the root house wider and shorter, which would allow space for a large box stall or several single stalls. At the horse stable end more stalls could be put in, and if desired a silo may be built adjoining the feed room.—Ed. F. A.]

Protection of Sheep from Dogs.

The Revised Statutes of Ontario, 1897, Chapter 271, Section 9, reads as follows:

9. Any person may kill,
 - (a) Any dog which he sees pursuing, worrying or wounding any sheep or lamb; or,
 - (b) Any dog without lawful permission in any enclosed field on any farm which the owner or occupant thereof or his servant finds giving tongue and terrifying any sheep or lamb on such farm; or,
 - (c) Any dog which any person finds straying between sunset and sunrise on any farm whereon any sheep or lambs are kept;

But no dog so straying which belongs to or is kept or harbored by the occupant of any premises next adjoining said farm or next adjoining that part of any highway or lane which abuts on said farm, nor any dog so straying either when securely muzzled or when accompanied by or being within reasonable call or control of any person owning or possessing or having the charge or care of said dog, shall be so killed unless there is reasonable apprehension that such dog if not killed is likely to pursue, worry, wound or terrify sheep or lambs then on the said farm. 56 V., c. 46, s. 2.



BAMBOO.

First-prize combination Harness and Saddle Horse, and First-prize Saddle Horse over 15 hands 2 inches.
OWNED BY L. MEREDITH, LONDON, ONT.

Green Manuring.

Green manuring may be the means of cleansing the field from weeds, for which purpose, of course, only the crops of the most rapid growth are useful. It increases the store of organic matter in the soil, and so furnishes the conditions favorable for the multiplication of earthworms, and these, as Darwin has pointed out, by their activities improve the soil in many ways, most important among which are better aeration, bringing of the finer materials to the top, pulverization and increased solubility of its constituents.

"There is no unbelief.

Whoever plants a seed beneath the sod,
And waits to see it push away the clod,
He trusts in God."