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ANDREW ARCHER, Editor.

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Rapid growth, early maturity, ability to convert a large quantity of food into a good, salable product, ability to fatten readily and to continue the process—these are all desirable qualities in swine, and they have all been secured in each of several breeds to a remarkable degree. Have we gone too far in our efforts to secure these points? This is a question worth the asking, and it may be that an affirmative answer will have to be given.

It is well known that we cannot secure perfection, nor even high excellence, in several directions at the same time, and that almost certainly some weak points will accompany the unusual development of good qualities; hence it is reasonable to suppose that, with such marked development in several desired qualities as our best breeds of swine exhibit, there will be at least obvious tendencies to some undesirable traits. If we add to this general proposition the facts that the present development has been secured in many cases by close inbreeding, and by reducing to a minimum opportunities, at least incentives, for exercise, and that oftentimes the breeding stock have not been kept in the best conditions for robust health in any respect, we shall think it strange if the result has not been deterioration of constitutional vigor, if not the implanting of well marked tendencies to serious diseases. Is it not the fact that very many of the most highly improved swine are not so healthy or so able to resist disease or unfavorable circumstances as is desirable?

But, aside from all this, have we not carried the tendency to lay on fat too far? It is admitted that many a show cow, or sheep, or hog is too fat to be most profitable, either for the butcher or consumer. There is a limit to the profitable production of fat. Is it not true that the disposition to lay on fat is an excess of what is really desirable in the case of several somewhat highly prized breeds? The proportion of lean meat has been reduced to a minimum, except in the hams and shoulders, and greatly decreased in these. For "home use," do any of us prefer such pigs? If any have doubts on this point, let them examine the carcasses of a "well fattened" hog, or look at sides of bacon, or even at a ham or shoulder. If opportunity offer, let a comparison be made of the carcasses of model, well bred pigs, always kept in high condition, and those of common or grade pigs, which have had more length of body, perhaps a little more length of leg, and which have fed during part of their lives on good grass or clover as almost their sole food, and which have never been without a fair amount of daily exercise. It is quite possible the decision may be that while the one set would give the greatest profit when on the market, the other would be much the more desirable for family eating.—*National Live Stock.*

Restoring Rancid Butter.

A patent was received some time ago by a New England farmer for restoring rancid butter:—

His process consists in melting the butter in a clean vessel under a slow and regular heat, and while it is melting he adds two ounces of pulverized alum to every five pounds of butter, the butter being stirred gently while melting. When thoroughly melted it is strained through a fine strainer into clean cold water. The butter will rise to the surface quite pure and transparent. The alum coagulates the albumen, the casein, and other foreign matter, all of which are retained in the strainer, leaving the butter perfectly pure and clean, and of uniform consistency.

When the butter is sufficiently cool to be in good working order, it is carefully taken out and thoroughly worked, adding to each five pounds of butter three ounces of good dairy salt, one ounce of pulverized white sugar. The butter is then packed in clean vessels, and is fit for use.

By covering it with strong brine and keeping it in a cool place, it is claimed it will remain sweet for any desired length of time.

While on the subject of butter, the following from a California paper is worthy of consideration:—

"In order to keep their butter over the period of low prices and hot weather, California dairymen seal up their products in tin cans, sinking them in the bottom of cold streams. Butter made in April comes out in October in good order, and continues to keep fresh in the cool weather of winter. Forty pound cans are generally used."

Watering Chickens before they Hatch.

A correspondent of the New England Farmer says on the above subject: Experiments with incubators seem to have proved that eggs must have moisture as well as heat, to hatch well. If this is true in the incubator, it is also true if the eggs are under a hen. Assuming that chickens must be watered before they are hatched, the problem which follows is, what is the safest and most economical way to water them? The natural way is by capillary attraction and evaporation. The hen makes a nest on damp ground; the heat from the hen evaporates the water from the soil directly under the eggs, and its place is supplied from the water in the surrounding soil, through capillary attraction—thus the eggs are kept in a moist atmosphere. To get the same conditions on a dry barn floor, or in a dry hen house, I put a bushel of moist sand or soil on the floor; on this I place one-half of a flour barrel or lime cask, without a head. To prepare this frame for the nest, take a barrel and nail the hoops to the staves, so that it will not drop apart when the head is out; saw the barrel in the centre; set these half barrel tubs without heads, small end down; saw out two staves just above the upper hoop. This makes a good door for the hen to go in and out at; spread the soil over a space somewhat larger than the frame; set the frame of soil in the frame; shape a nest in the soil, and put in good sweet rowen, or hay enough to press down to about one half inch thick; make a gutter in the soil outside of the frame, and all the way round it; make it large enough to hold a bucket of water; put in a bucket of water, when the hen is set; in one week put in another; in two weeks another; that will be enough. The sand or soil will keep moist under the eggs until they are hatched.

The first hen I set in this way I gave 12 eggs—she hatched them all; the next had 13 eggs—broke one; hatched 10; the next 13 eggs—broke one; hatched eleven; the next 13, and hatched them all; the next 13, and hatched 12. Seventy-seven eggs set; 71 chickens hatched. Aside from the watering, the next gives much better control of the hen than any I have used before. Hens with any of the nervous, timid Leghorn brood in them, do not like to be changed from where they have been laying, to a new nest; but this season I have had no trouble with hens that are very nervous and flighty; I stop the door with shingles. Put a stick across the top of the nest; put the hen in at night, and cover with a cloth, giving one or two nest eggs; leave her quiet and undisturbed for 36 hours, or until the second morning from the time she was put in. I make a pen about four feet square around the nest, in which to keep food and water for the hen, to keep other hens from getting to the nest and to prevent the hen from getting far from it. On the second morning I take away the shingle from the door of the nest, turn the cloth up, but leave the top covered; let them work a few days with the nest eggs only, getting the nest warm, and getting used to their new home, &c. When they seem at home, give them the eggs. When the eggs begin to hatch, stop the door-way with the shingles, remove the cover from the top, and, night and morning, lift the hen and take from the nest the loose egg shells. Begin to feed the

hen and chicks as soon as they begin to hatch; but keep them in the nest for two or three days, if the eggs are not hatched sooner.

There is more difference in the time required to hatch eggs, under different conditions, than I supposed—the variation this season being, with me, from 20 to 24 days. This season's experience leads me to think that in the past I have lost chickens from two causes: first, the eggs being in too dry an atmosphere; second, the hen leaving the nest before all the eggs had an opportunity to hatch.

Raising Pigs.

The most important thing for the swine breeder at this season of the year, is to get the greatest possible growth from his spring pigs. There is no period in the life of a hog when so great a return for the food consumed is possible, as during the first six months, and it is here that the advantages of skillful feeding are apparent. Unless great care be taken, the growth of the pig will be seriously checked when it is from three to five weeks old. The milk of the dam, which was ample to promote a rapid growth in the litter of pigs during the first two or three weeks is not sufficient to answer the demands of the same litter as they grow older; hence the pig should early be taught to look elsewhere for a part of its sustenance. This is an easy matter; a little milk or nutritious food of any kind, in liquid form, placed conveniently by, where the pigs can have access to it at all times, but beyond the reach of the sow, will soon do the work; and it should be replenished frequently through the day. If this is attended to, there will be no "stunting" of the pigs at this critical period, and their growth will be uniform and rapid. A good clover pasture is a valuable adjunct and helps wonderfully. The true secret of successful pork making is to push the pig from the date of birth until it is big enough for the market; and the earlier age at which this point can be reached, the greater is the return for the food consumed.

A slop made of corn and oats, ground in about equal parts, with a little oil meal added, makes the best food for the sow while suckling, to increase the flow of milk; and this, with clover pasture and plenty of soaked corn during the summer will promote a rapid and healthy growth of the pigs.

Green Food for Short Pastures.

If the farm is well stocked with cows it seldom happens that the pasture is not short at some period of the season, and if it has a large proportion of pasture to the number of cows there will be considerable grass not eaten off at the flush, and when the season is dry these uneaten spots will be so tough that cows will eat very little of the grass. It is better in the early part of the season to have cows enough to eat the grass down about even all over the pasture, for it then furnishes more food as the season advances. But the dairyman should make provision early in the season for any deficiency which may happen in his pasture; and for this oats is one of the best crops to feed green, and they should be sown early so as to be used, if necessary, in July. The oat is as well adapted to produce milk as clover but to be at the best it should be fed in the milk. It is then most palatable and nutritious. Milk is a highly nitrogenous body, and therefore, oats, clover and most of the grasses furnish the right food for it.—*Western Rural.*

Worn Out Pastures.

"He who by the plow would thrive, Himself must either hold or drive."

This time-honored maxim, although true, as a rule, has one exception at least, for Judge Crossett, of Duxbury, secures some of the most thorough ploughing, without doing either. Nor does his hired man put a hand to the plough or guide the team. And, moreover, they often cultivate lands that an ordinary team could not reach, such as old worn out pastures, rough and rocky, and so covered with brakes that the grass is completely crowded out. The Judge took me up to his field to see his tillers of the soil, who furnished their own board and camp on the ground where they labor, at the same time manuring the land wherever they work. A portion of his pasture that had grown up to brakes and briars was fenced off by itself, and here we found the queen of the field, with all her train, busily tearing up the mould, making it as mellow as an ash heap, and following each brake root until the last vestige was consumed. Likewise, the briars were destroyed, root and branch, leaving the ground so thoroughly ploughed that even the stones were thrown up from their beds, some boulders as large as a twelve quart pail.

A short distance below was another field where they had been at work the fall before. Here half a dozen shotes had been put upon an acre of brakes and briars the first of August, and by the middle of October the whole was completely ploughed, every brake and briar taken up by the roots, while shotes had gained in flesh and were in a thriving condition. The next spring the Judge planted this to potatoes and fenced off about five acres more, that was completely covered with brakes and briars, with here and there a patch of grass that had nearly run out for want of manure. He put in a sow and twelve shotes, scattering a little corn among the brakes the first day or two, but after that gave no other feed. They began in the midst of the thickest portion of the brakes and briars, making clean work as they went, feeding on these roots, and the patches of grass. This field was on a steep hillside, where it was almost impossible to draw manure, and the patches of grass had been mowed over until they bore but a very small crop. But these shotes were covering them with a topdressing that would restore the land to its original fertility. It is well worth some travel to see such work.

There are hundreds of acres of land in this vicinity that is so completely covered with brakes that not one spire of grass can grow. Once it was excellent pasture, but the brakes have crowded in, year after year, and the land being too rough and stony to plough, there has seemed to be no remedy but to "fall back in good order," and give the brakes the field. One farmer who formerly kept a dairy of twenty five cows, now can keep only twelve, because the brakes have overrun the pastures. How to kill brakes has been a difficult question to answer, but Judge Crossett has solved the problem. Fence in a few shotes and give them nothing else to eat, so that they will be obliged to tear up the brake roots or starve—literally to "root hog or die"—and very soon the brakes and briars will give place to a good crop of grass. But be sure and give these ploughmen plenty of pure, cold water. This is indispensable.

Now do not these experiments teach us that we must go back to some of the old methods from which we have departed? By pasturing

neat cattle exclusively, there are high knolls and steep hillsides that become worn out and barren; also, rough, rocky land where the brakes and briars are crowding out the grass, year by year. A few sheep will nip the grass on the high knolls, and in every nook and corner, biting close and loosening the roots, as well as giving it a good dressing of manure. Then again the hogs that are ploughing the ground and destroying the brakes and briars, will be quite as healthy as those that are shut up in pens to wallow in mud and filth.

Spreading Manure.

Prof. S. W. Johnson says that manure from the yard or stable rarely contains such an amount of volatile fertilizing matter as should enter one from spreading it broadcast on the surface when most convenient. Unless manure is very rich, as from grain fed animals, and is in an active state of fermentation, hot and smelly, there can be no loss from exposure, and in any case the loss will be less by spreading out thinly, than by dropping it in small heaps, because spreading means cooling and the stop of fermentation. The soil if not sand is an energetic absorber of ammonia and will not allow much to escape.

But manures when properly handled, need not suffer any waste from evaporation. A moderated and regulated heating of fresh manure results in the formation of humic acid which secures the ammonia from loss by evaporation. This moderate heating it should have before hauling out or in cold weather before it heats at all.

The advantages of spreading manure from the wagon as it is drawn out are a saving of labor and an even distribution of the soluble salts (ammonia, potash, phosphate, etc.) in the soil by rain. If the manure is heaped on the field and gets a heavy rain before spreading the ground under the heaps receives an undue share of the best part of the manure.

The *Allgemeine Hofen-Zeitung* states that the cabbage butterfly, as also its caterpillar, cannot endure the pungent smell of the *Anethum graveolens* or Dill, and that not only the plant itself but also beds of other vegetables, such as greens and turnips, among which it is interspersed, remain absolutely free from the attacks of these extremely destructive creatures. Gardeners would do well therefore, to have a few of these unbeliferous plants here and there among their crops. The Dill is most accommodated in its habits, growing freely in almost any sort of soil, and when once introduced will readily be produced from year to year, without further trouble, by simple self-sowing. The ripe seeds of the plant can also be utilized in making spiced cheese, or other preparations, in place of the caraway generally employed, so that it is worth cultivating for that purpose alone, independent of its protective power the attacks of insect plagues.

—London Farmer.

EXTRAORDINARY FECONDITY OF A COW.—Prof. Carl Freytag, of the University of Halle, records an extraordinary instance of fecundity in the cow, which recently came under his observation at Zeitz, in the province of Saxony. On April 30 last, the animal in question gave birth to four calves in quick succession, and very shortly afterwards dropped a fifth. Parturition proceeded altogether normally, and the mother appeared to suffer no more than in the ordinary way. The calves were well developed, but were all still-born.—*London Farmer.*

Care of Bees.

Mr. Keep, in the *Direco Rural* says that the season has come for the summer care of bees. Whatever mistakes or losses have been made in wintering, it is too late now to remedy; but perhaps a few hints may aid the many new beginners who are giving this industry a trial, and I confess my sympathies are mostly with such as need to economize and get the best returns for their outlay. This will pertain mostly to the matter of providing hives for the new swarms and boxes for surplus honey, from which the profits are mostly to come.

The most common mistakes with new beginners is too much outlay in hives and boxes, generally gratifying to the eye to see the painted, good-looking hives in the yard, sometimes with advantage to the product, but more often with fatal injury. Some curious and interesting things can be done with patent bee-hives, but the patentees generally discard their own inventions when they get through selling them. The best bee-keepers the world over, say the cheapest and most simple hives are the best. Yet I would by all means have those who have invested in any fancy model, to give it a fair trial.

In my own case of getting \$150 annual income, my outlay has been from one to three dollars, except ten or fifteen dollars lost in trials on patents. I will now give my favorite model. The common chamber hive is more expensive than is needed, is hard to handle, and every way less convenient than the cap hive. Four pieces of inch boards, 13 inches square and a thin piece for the top makes the main hive. In this thin top, there must be liberal open spaces one inch wide; three or four of these two-thirds the way across the top, over which the honey box, with only two or three slats for the bottom is to fit down close to the edges, thus giving easy passage from the hive up into the box. This box, five inches deep, will have its outside dimensions a little less than the inside of the hive, so that the cap of the same dimensions as the hive, will fit easily over it. Then in the back side of the hive and in one side of the honey box, must be a little space, covered inside with glass, and in the case of the hive some covering of a slide or hanging door. A space two inches by three is sufficient to see the condition of things inside. This form of a hive is much more secure for the bees. The hive is stronger and every way better than when one whole side is made of glass covered with a door, more convenient for putting on and taking off boxes, and far more easy to carry into the cellar.

This form of hive, honey box and cap, costs about fifty cents, when made of suitable lumber. As to the many inventions for artificial swarming, I have never learned any practical value in them. I am aware that moveable frames for the combs are in use with some good bee keepers. I have had such a hive for five years, without ever finding the combs movable, and the extra expense gives no return, only with a few having time to manipulate them.

Buying Tools.

1st. Know what kind of work you want to accomplish. If a plough, do you want a lap furrow or a flat furrow turned? If a harrow, do you want a sacrifier or a pulverizer or a smoother instrument? Do you want light draft or a heavy draft? And so with other tools.

2nd. Decide on the most efficient implement to accomplish your purpose. If a corn sheller, do not consult a false economy by getting one a little smaller than you can most profitably use. If a cultivator, get one that is strong enough to wear. If a pulley, one that is stronger than any possible strain to which you can apply it.

3rd. Always get the best and most thoroughly built instrument in the market, and be willing to pay for the workmanship. A cheap tool is never satisfactory in the end. Buy at as low a price as you can, but don't get a cheap tool.

4th. Before buying, see if you really need it. Calculate the gain which will come from its use and the saving which may reasonably be expected from its ownership.

5th. Remember that too many implements and too expensive implements are ruinous draft on the farm profits. Balance this thought, however, with the opposite reflection—there can be no greater waste of resources than going without a tool that is really needed.

Few farmers buy too many tools, but many buy unintelligently and wastefully. The best tool is always more profitable to buy than an inferior one, and yet, no matter how good the implement, it is unsatisfactory

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unless you find occasion for its advantageous use. The saving from machinery comes from use, not from storage.

Now, if farmers will add to this careful buying, intelligence in taking care of the tool so wisely purchased, they will save a severe drain on the farm income. A rusty plough by the roadside is a very common sight at this time of the year. A farmer ploughs a field and concludes that he will want the same plough in an adjoining lot next week, and so instead of taking the plough to the barn and placing it under cover, he leaves it on the ground to be ready for use.—*Scientific Farmer.*

Mulching.

A great many trees die every year which might have easily been saved if they had been mulched during the summer. A little straw, or old hay, thrown around the trunks of young trees when they are set out does much to insure their life and their rapid growth. It often happens that trees start well soon after they are put out, but wither and die during the extreme heat of summer. Mulching would prevent this evil in a great majority of cases. The roots of the trees are few and small and require considerable moisture to make them thrive. The hot sun dries the earth around the trunks and over the whole root surface. Too often too large of the top is left on and the leaf surface is altogether too large for the extent of the roots. The leaves carry off moisture very fast and if the season is not quite wet, the trees will be likely to die. Trees which have been thus put out should be pruned without delay. Many of them may be saved in this manner, and, if in addition to this, mulching is performed, the losses which would occur may be greatly reduced.

Many trees which stand in grass land do well until after haying and then wither and perish. This is due to the fact that in June the grass shades the ground, around the roots and thus furnishes some protection. When the hay crop is gathered this protection is removed and the roots are exposed to the drying action of the sun and wind in the hottest part of the season. In all cases of young trees which were not mulched early in the spring the work should be done as soon as the grass is removed.

It is also a good plan to mulch currant bushes, blackberry, and similar plants. This not only keeps down the weeds but will prevent the growth of suckers from the roots of the briars, and will keep the roots from drying and the plants from withering. With all plants which throw up sprouts from the roots, mulching proves more satisfactory than hoeing, and the plants are not only surer to live but also make a much more rapid growth than would otherwise be secured.—*Ex.*

Potato Bug Parasite.

The agricultural editor of the New York Sun, a man exceptionally well posted, by the way, in entomology, makes an interesting announcement in regard to a parasite which has appeared on the potato bug, and from which farmers have reason to expect great service. He says it has long been known that the Colorado potato beetle had several natural enemies among insects, but they have done very little towards reducing the number or ravages of this great pest. A few years since Prof. Riley announced that he had discovered a minute parasite mite infesting the beetles, from which he had great hopes of aid in destroying them, and he named the mite *Tropodoma Americana*. He received his first specimen from Ohio in 1873 and later it was found at Poughkeepsie, N. Y. This season we have found this mite in great numbers in New Jersey, and they are evidently destroying many of the beetles, as we find them dead and literally covered with their parasite enemies. They are quite small, no larger than the head of a very small pin, and of oval shape, and a yellowish-brown color. This mite will probably do more to rid our fields of the potato beetles than its many larger enemies.—*New England Farmer.*

A contemporary says: There is no reason why farming may not be made to pay much better than it does. Very few have learned to regard it as business. It is a sort of chance work all round. Most men look on it as a sort of real estate transaction. They hope some day to sell out a big figure, hence are afraid to improve their farms with a view to agricultural operations, for fear that whoever buys the land will not care for these little things. We have often heard some improving farmer ridiculed for his expenditures by some knowing ones, who were very sure so-and-so would get no more for his place than he had thrown the money in the dirt.