

QUESTIONS AND ANSWERS On Livestock and Poultry Culture

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(Continued from last Issue)

7. What should be fed to pigs?

In home units all they will eat of the fresh left-overs from the table and kitchen, as rice, gills and entrails of fish, "sapal", papaya and banana peelings, etc., supplemented with greens like "camote," "kangkong", "petchay", tender green grass, "water lily", etc. They should have access to clean water, wood charcoal and wood ashed. Of course, if "darak", ground corn, "tahup" and copra meal are cheaply available these may be added to advantage in the slop of left-overs. The usual defects noticed in the feeding of swine in home units is the lack of green feed and mineral and the lack of sufficient amount of same. As a rule the food consists largely of left-over rice; and naturally the pig practically only exists and does not add more weight even after one month of such feeding, because such food lacks protein, minerals and vitamins.

8. What else should be recommended on the subject of feeding?

For those who have the time and space, it would be advisable to plant a plot to forage for soilage, as "camote", "tapilan" Guinea grass or others. Corn plants and "ulasiman" are also relished by pigs, but mongo, peanuts, "utao" and other leguminous plants are good sources of protein and mineral which are needed for growth. The younger the growth the higher the protein and mineral content. It keeps them also strong and healthy. Molasses if available is a fattening food and is a good source of mineral. What is needed to remember is to give variety and the correct quantity.

9. What are the usual defects found in the care of pigs?

In towns the pigs are either kept in "ulbo" (stys) or are let loose. If kept in "ulbo" they do not get enough exercise and cannot be expected to breed when the time comes. If let loose, it is not only objectionable in many ways but they easily become infested with intestinal worms and may become contaminated with a contagious disease as hog cholera, swing plague, etc. It is, therefore, preferable to tether them from day to day on different well drained lots where they have access to greens, water and shade. In the farms they may be kept in wide enclosure and soilage fed.

10. If "tahup" (corn bran w/broken grain), "darak" (rice bran) and copra meal are available, what is a good mixture for growing pigs and brood sows?

4 parts, first class darak
1 part copra meal
1 part tahup

For every 100 kilos of this mixture add 1/2 kilo of salt and 2 kilos of finely ground shells or well sifted wood ashes.

11. Describe selection.

Selection is a continuous process of retaining the animals possessing the qualities and characteristics and culling (getting rid) of the inferior stock. For example, in selecting sows for breeding choose those that are active, healthy and with glossy hair. Select those well proportioned with wide, straight to arched back, deep body and with capacity to eat, and strong, with straight legs and well developed hams. Cull those that are small for the breed and age. Cull those that do not look healthy.

12. When is the best age for a gilt (a young sow) to breed?

When she is sufficiently developed or at about 8 to 9 month old. At this age if she comes in heat (in condition to breed) breed her in the best available boar in the community; if a government breeding station is nearby it is better to take advantage of the purebred boars at the station. The

livestock extension officer of the Bureau of Animal Industry, if there is one in the province, would be pleased to be of service, or inquiry could be made direct from the Bureau of Animal Industry, Pandacan, Manila. The gilt or sow may be bred at any day when in heat but the best chances of success are obtained in the third day of heat.

13. What else maybe suggested in connection with breeding sow?

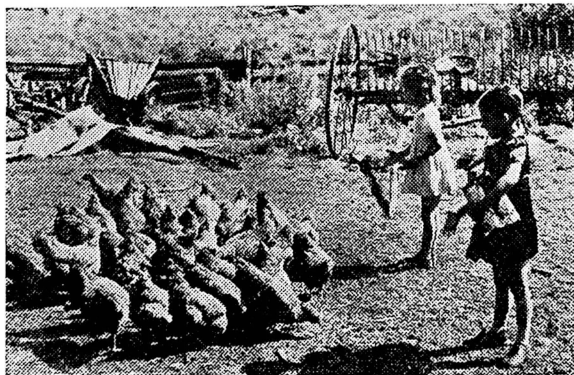
When a sow is bred it is better to note down the date so that the approximate date of farrowing (dropping of young) is known. The gestation period (the time between breeding and farrowing) lasts 112 to 114 days. That is, if bred October 28, 1945, the approximate date of farrowing would be about February 16th, 1946.

14. What should one do when the pregnant sow is due to farrow?

At about the completion of the gestation period, prepare plenty of bedding (dried leaves of trees, of bananas, or rice straw). Put the sow in the farrowing pen (room) that has been previously properly cleaned and well spread with bedding. This allows her to get well acquainted with the place and she may be expected to farrow quietly. If for some reason the date the sow is expected to farrow is forgotten, just notice the udders. If they are well distended and if milk flows when the teats are pressed the sow may farrow in 24 to 48 hours. Sows before farrowing usually become restless may be seen to root (turn) the floor and transfer the bedding to the corner she expects to lie down.

15. How many times can a sow farrow in a year?

As many as two times a year when properly cared and fed so that the pigs may develop properly and can be weaned (separated from the dam (mother) when they are eight to ten weeks old. On the average you may estimate three farrowings every two years.



(USIS cut)
Backyard poultry in the United States. Children take care of the flock as in the Philippines.

16. Give general instructions on what to do after farrowing.

After farrowing the sow will not eat for 12 to 24 hours. As soon as it is noticed that she wants to eat give a thin slop of the same feed she used to be fed before farrowing. The consistency of the slop feed and the amount should be gradually increased from day to day so that in about a week she can be given the regular amount which is all she will eat in two or preferably three feedings. Frequent visits and judicious surveillance are necessary during farrowing and for several days after in order to see to it that the sucklings are not crushed by the dam.

In the fourth day after farrowing and even on the third, if the pigs are strong and healthy, allow the dam to roam in a fenced yard or tether her in an open field for sunning and exercise. The pigs at this time begin to root and are able to obtain some minerals from the ground. In the soil there may be traces of copper necessary to prevent anemia. Every precaution should be taken to let them roam in clean ground where pigs have not been kept for sometime. They should have no access to muddy places. Such steps will greatly reduce intestinal worm infestation. It is desirable that three feedings be given two weeks after farrowing because the suckling pigs begin then to nibble. At three weeks they join the dam more regularly. When it is noticed that the sucklings try to crowd the dam it is better to let them eat in a separate feeding trough, preparatory to the day when they will have to be weaned. Some people in fact build creepers, which are contraptions so built that the young may go in and out to eat peacefully without being bothered by the dam. This is not necessary when the dam is tethered, as the feed trough for the sucklings can be placed at a distance far from the dam's reach.

It is better to keep the dam and young in-doors during heavy or continuous rain but clean clods of earth should be thrown in for the pigs to root.

17. When is the best time to wean?

When the pigs are eight to ten weeks old. At this stage the important thing to observe is whether they are eating heartily of the slop feed fed to the dam and if the pigs look strong and healthy. Weaning at this age helps the dam to recuperate quickly and enable her to breed and produce pigs earlier.

18. How is weaning done?

In weaning it is the dam that is taken away from the sucklings and placed where the young can not hear her grunts. In this way the young do not fret so much, as they are used to their surroundings. They will only miss their dam.

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PROGRESSIVE FARMING

USE HYBRID CORN FOR SEEDS

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The practical development of varieties that are inherently more productive than those now used is of great importance to Philippine agriculture. The improvement of corn through breeding and better cultural practices has occupied the attention of growers, especially of government agencies who have the technical men and the resources to conduct such experiments on crop development. In the United States, the Department of Agriculture has discovered that the utilization of two breeding methods, mass selection and breeding within inbred lines, produce hybrid corn. This latest development in corn breeding technique has produced hybrids which have established their superiority in productiveness and in resistance to wind, diseases, and other unfavorable conditions.

Upon this basic knowledge, the Filipino farmer is offered an opportunity to augment his income through the use of hybrid corn seeds suitable to his locality. The question arises, from what sources will farmers obtain their seeds? Knowing the peculiarity of behavior of hybrid seeds, it is of paramount importance that centers of distribution be established, wherein a particular hybrid corn seed has been developed, adapted to the local conditions. Only the first filial generation may be used to produce the desired results in productiveness, and other desirable features.

Methods Used to Control Pollination

The following technique of corn hybridization is being described:

"The development of inbred lines and their later use in the production of hybrid corn necessitates controlled pollination. During the inbreeding period and the period of experimental crossing, pollination usually is controlled by hand-bagging of the ears and tassels.

In the large-scale production of hybrids, the pollination is controlled by isolation and detasseling.

Self-pollination or "selfing" consists in pollinating the silks of selected plants with pollen from the tassels of the same plants. Two quite different methods of accomplishing self-pollination are in common use. Both methods require that the young ear shoot be covered to exclude foreign pollen before the silks emerge. Shall glassine bags are very convenient for this purpose. Later operations differ widely for the two methods and will be described separately.

In one procedure, (which for convenience may be called the "tassel-bagging method,") when the silks appear, the glassine bag is removed, the young shoot is cut back by trimming off the silks to three quarters of an inch of the tips of the husks, and the glassine bag is replaced. The tassel is enclosed in a large bag at this time. In 24 to 48 hours an even brush of fresh silks 1-1/2 to 2 inches long will have grown out. The pollen is collected in the tassel bag and dusted on the silks, then the shoot is again covered with the large tassel bag, which remains over the ear until harvest.

A second method, usually designated as the "bottle method" was developed. When the silks appear under the protecting glassine bag, the bag is removed and the shoot is trimmed back as in the previous method. A 2-ounce bottle of water is hung from the stalk at the ear-bearing node. The tassel is cut from the stalk, its shank is inserted in the bottle of water, and tassel and shoot are enclosed in large paper bag. The tassel should be arranged directly above the ear shoot. The bottle of water serves to keep the tassel alive while new silks appear, and as fresh silks

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19. What precautions should be taken when weaning?

To avoid inflammation (swelling) of the udder of the dam, feed her only once in 24 hours, before weaning, and only one half of the daily ration one to two days previous to weaning and one to two days after weaning. These measures dry the brood sow without ill-effects.

20. What is the food for the weanings?

For the first few days they may be fed the same slop feed and some of the greens fed the dam. This can be improved from day to day by the addition of other feeds higher in protein as the mixture of feed given in the answer to question No. 10. The important thing is to be sure that there is enough trough space for every pig; that they are fully satisfied; that the food fed is fresh and palatable; and that the slop is rich in protein and mineral feed needed for proper growth.

21. Are camote, "kamoteng-kahoy" and banana trunks good food for pigs?

They are; however, the first two are more for fattening than for growth; the last one is not only high in water content but high in fiber. This require some study. Another common mistake in swine feeding is feeding of bulky feeds. If a pig is expected to grow well, the food should be highly nutritious; high in protein, high in minerals and vitamins; and should be well balanced as regard car-

bonaceous and protein feeds and the mineral content in the same way we balanced "kanin" (rice) and "ulam" (viand).

22. What are starchy foods?

Starchy foods generally refer to foods rich in starch as corn, rice, "tatad," "adlay," "camote," "kamoteng-kahoy," etc.

23. What are protein feeds?

Protein feeds are those high in protein as mango, peanuts, "tapilan," copra meal, soybean oil meal, meat meal, fish meal, shrimp meal, "suso," etc.

24. What are soiling crops?

These refer largely to cultivated forage that are out from time to time in the green, fresh stage to feed to animals. "Tapilan," "mongo," "utao," soybeans, peanuts, cowpeas, are leguminous crops rich in protein and minerals. Napier grass, Guinea grass, Para grass, "bungalon," Uba cane, corn, Sudan grass, Sorghum and also camote are crops rich in starch, sugars and other carbohydrates and also rich in minerals. In the young succulent stage all these plants are higher in protein, minerals and vitamins than in older stage. For the same purpose advantage may be taken also of "ipil-ipil," "manimanian," "kulape" (carubac grass), "ulasiman," or ("kulasiman"), "kangkong" and the present Pasig river aquatic plant known locally "water-lily."

25. Compare the composition of some of these foods and plants.

The following table of analysis largely taken from Morrison's feeds and feeding may be helpful. (See table next page).

26. What are the interesting points noticeable in the table?

The grain by-products with the exception of rice bran are low in mineral content and there is a wide difference between protein and starch. (The rice bran contains the embryo and rice chaff. To the first is due the higher content of protein upset by the high fat content and to the last is due the higher fiber content.) Another important fact is that calcium is very much lower than phosphorous. The animal and the vegetable protein foods are comparatively the reverse to the cereal food as regards protein and starches. This is also true as regards the ratio of calcium and phosphorous. The green roughages are low in nutrients but comparatively higher in fiber and mineral content. The relation of calcium and phosphorous in greens is more in accordance to the right proportion needed by the animals. Comparing the grasses and legumes there is also a wider difference between calcium and phosphorous in legumes than in grasses the reverse is true as regards protein and starches.

27. How much green forage may be fed to swine?

A pregnant sow may be fed all the tender green feed she will eat besides the concentrate feed it is fed. It is understood that in feeding such amount a gradual change had been allowed to reach it. Such food serves not only as a mild laxative but it distends the alimentary tract and develops roomier barrels in the brood sows. "Camote" and "tapilan" cut into short pieces or young corn plants and "tapilan" make good green feed mixtures. Sucklings, newly weaned and growing pigs should not be fed much green roughage or other food high in fiber. Their digestive apparatus are small and can not handle advantageously such feed. If forced to eat such feed they become pot-bellied or runted (among the Tagalogs the term is "bansut"). They, like a nursing dam should be fed mostly very nourishing, well balanced concentrates, rich in proteins, minerals and vitamins needed for normal growth.

28. Is excessive fatness advisable in a gilt?

It must be guarded against by proper exercise, sufficient protein and more but not too much bulky feeds rather than feeding mostly rice or mostly corn. Variety in the foods fed is important.

29. Is the construction of a pen or a pen and yard necessary?

No; but it is a most convenient system. At least the owner will feel more at ease against attacks of dogs and the animal is more comfortable.

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CONCENTRATES (Grains & by-products)	Protein	Fat	Fiber	N-free extract (starches, sugars)	Calcium	Phosphorus
Corn	9.8	4.3	1.9	70.1	--	0.30
Corn feed meal ("tahup")	10.0	4.4	3.0	71.0	0.03	0.27
Sorghum (kafir)	11.2	3.0	2.3	70.3	0.04	0.30
Rice (brown)	6.9	2.0	1.0	77.2	--	--
Rice bran	12.8	13.4	13.0	41.1	.08	1.36
"Binlid"	6.42	1.26	5.83	67.83		
Cassava meal	0.2	0.7	6.1	76.8	--	.03
Copra meal	20.8	8.2	10.4	45.0	0.21	0.62
Fish meal	58.7	7.9	0.9	4.1	5.37	2.98
Meat scraps	55.0	10.7	2.2	1.2	8.70	4.30
Soybean oil meal	44.3	8.7	8.6	30.3	0.28	0.66
Molasses (cane)	2.8	--	--	61.9	0.56	0.06
Garbage	3.0	7.2	1.1	22.2	--	--
Peanuts seeds	30.5	47.7	2.5	11.7	0.06	0.38
GREEN ROUGHAGE (Grasses)						
Bermuda grass	3.5	1.0	8.7	18.3	--	.07
Corn pant	2.0	0.6	4.9	13.6	--	.04
Guinea grass	2.2	0.7	--	10.9	--	--
Napier grass	2.5	0.3	9.1	10.0	.12	.10
Para grass	1.7	0.5	9.2	13.4	.13	.05
Sudan grass (all stages)	2.0	0.6	8.5	12.8	.14	.06
Sudan grass, in bloom	2.2	0.6	7.8	11.2		
"Culape" grass	1.84	1.04	7.47	12.23		
Barit grass	2.96	0.90	4.68	6.71		
L E G U M E S						
Cowpeas	3.0	0.5	3.8	7.0	.20	.06
Soybeans	4.2	1.1	6.7	10.1		
O T H E R S						
Cabbage (outer leaves)	2.6	0.4	2.7	7.1		

30. What is the best way of tying a pig that is being tethered?

Use medium sized rope tied twice around the body over the shoulder so that an X forms between the front legs and there is a loop over the shoulder to which a dog chain may be snaped. If not long enough another piece of rope may be tied at the end of the chain. This rope is best tied to a low branch of a tree. The purpose of the dog chain is to prevent it becoming entangled. If a chain is not available the rope may be arranged under the same principle followed in tethering fighting cocks.

31. What is the simplest mineral mixture to have for pigs?

Mix equal parts by weight of sifted hardwood ashes and salt.

32. When may a sow be rebred?

A sow will take a boar (male pig) three days after farrowing but it is not advisable to breed at that time. Sows kept up in good flesh may be bred on the next heat that comes on the fourth to sixth week after farrowing. Heat may be induced at this time by shutting the pigs away from the dam a few nights and feeding more concentrate feed high in protein.

33. Is it a good practice to wean the big pigs first to permit the small ones to grow well?

Such practice should not be followed as some of the udders may not be nursed and become caked and even ruined.

34. When should pigs be castrated?

Pigs may be castrated after they are ten days old. There is very little set back noticeable in their growth if done while suckling. In fact castration, ear-marking or ear notching, and vaccination should be done by spreading the various operations from ten days after being farrowed to a week before weaning.

35. What is ear-notching?

Ear-notching in pigs is the cutting of small portions of their ears for identification and recording purposes preparatory to a more extensive development of the project into a semi-commercial or commercial venture.

36. What are the most common diseases of pigs?

Hog cholera, swine plague and intestinal parasites.

37. What should be done about these diseases?

Prevention through continuous cleanliness, proper sanitation and the least contact direct or indirect with animals suspected to come from areas where there may be disease or the use of utensils from such animals. When any disease is suspected or is known to exist in the neighborhood, a civic spirited person should report some to the nearest disease control Veterinary Office or employee or write direct to the Director of Animal Industry, Manila.

38. What other sources of help may the government extend to home or farm units?

The Livestock Extension Service Officer of the province may be called upon concerning care, feeds, feeding, management, selection of sites, con-
(Continued on next page)

M. JOSUE

WATCH REPAIRER

- MALIGTAS JOSUE
Master Repairer
- HENRY LEWIS
- FORTUNATO SANTOS PULPULAAN
Assistants

714 QUEZON BOULEVARD

struction of houses, sheds, fencing, purchase of breeding stock, appliances, selection and culling of stock, castration, caponization and other topics on animal culture that may be of interest to the public.

39. Can swine be raised in the Philippines in large groups by private enterprises?

Yes. Before this war there were already quite a number of persons in many provinces who raised pigs in large groups of not less than fifty head, mostly grade or purebred stock. These were raised largely under conditions favorable to the cheap acquisition of the bulk of feed fed.

40. Where were some of these located?

In Rizal, Nueva Ecija, Pampanga, Pangasinan, Occidental Negros, and Davao. However, as far as the condition of the land was concerned, many were not satisfactorily located but the promises could be greatly improved by draining pools or filling up the mud holes. They were either near rice mills, corn mills or coconut plantations or coconut oil factories where copra cake, or copra meal were cheaply available. Some were near and took advantage of the garbage from restaurants, hotels or army barracks; some were able to obtain brewer's grain practically free; and some had a combination of these feed facilities.

41. What is a satisfactory condition of land in the raising of pigs?

In the raising of pigs, especially in larger numbers where the home left-overs do not suffice to feed them, it is necessary to have land that drains easily and, if possible, of sufficient size so that forage and even pasture plants may be grown to reduce expenses.

42. What kind of land drains easily?

High or rolling land easily drains, or may be easily drained; and land with sandy, loam, or sandy-loam soils that permit water to filter through in a short time.

43. Why is that necessary?

Because it is important to prevent mud pools to form so easily as they become sources of infection especially of intestinal parasites.

44. How is the best way to start a swine project larger in size than a home unit?

There are really many ways to start such projects. But the more ordinary ways are as follows:

(a) By buying from a reliable party the desired number of selected gilts or sows and a boar. The chances of starting with selected stock that are not sick of a contagious disease can be easily ascertained. It may be mentioned here that buying from different sources expose the project to more chances of disease, especially if the stock is bought from sources that are not properly attended or organized.

Progressive Farming . . .

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grow they are pollinated by pollen from the enclosed tassel. It has been found advantageous to use a mild disinfectant in the water to retard the growth of micro-organisms and thus lengthen the life of the tassel. A solution of sodium bisulphite 1:2,000, which must be fresh, has proven very satisfactory for this purpose. After 48 to 72 hours the tassels may be removed and the bottles collected. These may be used again for other pollinations.¹

Several satisfactory methods of hand crossing are in common use. The young shoots must be protected from stray pollen as in selfing. When the silks appear the plants may be crossed in a manner similar to either the tassel-bagging method or the bottle method described above. Where larger quantities of seeds are required, it is usual to mix the pollen collected from several plants of one line and apply it to the silks

¹The Year Book of Agriculture, 1936 of the Dept. of Agriculture, U. S.

of the desired number of plants in other lines.

The larger scale or commercial production of crossed seed is accomplished by planting alternate blocks of the two parents in a field isolated from other corn and removing the tassels from all of one kind before pollen has been shed. The seed picked from these detasseled rows is hybrid seed. The ratio of pollen rows to detasseled rows varies from 1:2 to 1:4 depending on the vigor and pollen-producing ability of the pollen rows. Where inbred lines are being crossed, the more usual ratio is 1:2 and where single crosses are being crossed to produce double crosses the proportion of pollen rows, under favorable circumstances, may be reduced to 1:4.

This description of hybridizing corn may well be followed in agricultural schools thus enabling the different localities to produce the hybrid seeds adapted to the locality. It is evident that work along this line necessitates a considerable time before satisfactory results may be obtained. However, this work can be conducted in cooperation with the Bureau of Plant Industry Experiment Stations in order to hasten results and avoid duplication of work.

This is the right time to start experiments on corn hybridization with the objective of discovering a hybrid that will greatly redound to the benefit of our farmers. The corn production of this country is undeniably very low mainly due to the fact that our farmers do very little seed selection and in several instances they just resort to buying their seeds from the market because whatever they have produced and saved for seeds for the next planting had been consumed for food or fed to animals.

With the production of hybrid corn for seeds in the different localities where experiment stations and agricultural schools are established the use of hybrid corn for seeds would be then an established practice of progressive farming in this country.

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HOME GADGETS

Mechanizing of farming in the Philippines often gives the wrong conception to many people. Many have the belief that when we say "mechanize our agriculture" it means the revolutionizing of our farming by big capitalists by the use of big motors, tractors, machineries be-

(c) A system followed by a number is to buy a good boar, usually a purebred boar, and advertise among his neighbors that a successful breeding is payable at the rate of one selected newly weaned gilt resulting from the breeding. In a year, from 50 to as high as 100 gilts may be collected. In this connection it is well to warn that it is not advisable for new swine raisers or those without sufficient experience to go at once into the production of a large number of pigs.

(To Be Continued)