

How Many Hens Should be Kept Together?

It is now well understood that for best results large flocks of hens do not give as profitable returns as when fewer are kept together and proportionately more space given them. The size of the flock which may be profitably kept together in pens of definite size has been reported on by the Main Experimental Station. The pens were 10 feet by 16, and the entire floor space of 160 square feet was available. The tests were made with four lots of 15 pullets each, four lots of 20, four lots of 25, and three lots of 30. The breeds selected were Brahmas and Barred Plymouth Rocks, there being 8 lots of the former and 7 of the latter. The experimental conditions would give the lots containing 15 pullets 10.6 feet of floor space each, the lots containing 20 pullets 8.4 square feet each, those containing 25 pullets 6.4 square feet, and those containing 30 pullets 5.3 square feet to each bird. The pullets were all hatched in May but 15, which were hatched two weeks earlier, and all were as uniform as possible in form, size and vigor. The results with the different lots of the same size were found to be quite uniform. The table below summarizes the more important results:

Number of hens in each pen.	Average floor space per hen.	Number of eggs produced per hen during six months.	Number of eggs produced per pen.	Value of eggs produced per pen at 20c. each.	Value of food consumed per pen at 10c. per lb.	Income per pen, less cost of food during six months.	Net income per hen during six months.
15	10.6	65.1	976	\$19.52	\$7.50	\$12.02	\$0.80
20	8.4	60.4	1,208	24.16	10.00	14.16	.71
25	6.4	51.4	1,284	25.68	12.50	13.18	.53
30	5.3	40.1	1,203	24.06	15.00	9.06	.30

The table shows that "the lots containing 20 hens gave a greater total net profit per lot than did those containing any greater or less number of hens. Lots with 25 hens gave slightly greater net returns than did any of the others. The average net profit per hen, however, steadily decreased as the number of hens per pen increased, being 80 cents per hen during six months with the lots of 15 and only 30 cents with the lots of 30.

The tests indicate in general that the best results will be obtained by allowing each hen from 8 to 10 feet of floor space.

Animal Food for Poultry.

It is desirable to feed poultry animal matter in some form. This has long been taught by practical feeders; but the exact effect of such feeding has never been shown so clearly as in experiments recently concluded by the New York Agricultural Experiment Station at Geneva. In these tests 1,000 chicks and 170 ducklings have been grown to marketable size, and 90 hens and 40 cockerels have been fed for lengthy periods; so that the evidence presented in Bulletin No. 171 has the weight of time and numbers. It all points in one direction: Toward superiority of rations containing animal food over those made up of grains alone. In no case has the reverse of this proven true, and in nearly all the trials the difference has been most noticeable. When the lack of mineral matter in an all-grain ration, as compared with one containing animal meal, is supplied by bone ash, the difference disappears or favors the grain ration, so far as chicks and laying hens are concerned; that is, it is the small amount of ash in the grain ration which makes this ration inferior to one containing animal meal, rather than a difference in quality of the protein.

Practically this is of little importance, for, except under rare conditions like those surrounding these experiments, it would be easier, cheaper and better to use animal meal, meat scraps or cut bone to supplement a ration for fowls in confinement, than to burn the bones or to buy bone ash. Something to supplement the ash-poor grains they must have, and it is simpler to give it in a natural form, combined with valuable protein and fats, than to burn out the organic matter and give the ash only.

With ducks, however, even the addition of the bone ash did not make the grains a perfect feed. Ducks are naturally great lovers of small fish and frogs and snails and such forms of animal life found

in their water excursions. Unless they have something to take the place of this animal matter, they cannot do their best.

In farm poultry feeding, where the birds have range of orchard and pasture, of course they get animal food in the insects and worms and snails which they scratch for so vigorously; so grains may make up practically all the ration fed. The birds themselves will attend to the supply of animal food.

APIARY.

Subduing and Handling Bees.

BY MORLEY PETTIT.

"It is true that bees cannot bite and kick like horses, nor can they hook like cattle; but most people, after having had an experience with bee stings for the first time, are inclined to think they would rather be bitten, kicked and hooked, all together, than risk a repetition of that keen and exquisite anguish which one feels as he receives the full contents of the poison bag from a vigorous hybrid, during the height of the honey season." (A. B. C. of Bee Culture.)

The writer well remembers using an old-style smoker, manufactured by the author of the above, from which live coals would occasionally fall on the hand; and these were often mistaken for stings! However, bees do not sting, promiscuously, anyone who approaches them, nor do they know one person from another, except as one learns their whims in order to deal with them peaceably. They are often much annoyed by persons standing in their way and interfering with their work, as is aptly illustrated in the work quoted above. "If you should go into a factory, and stand in the way of the workmen until a dozen of them were blocked up with their arms full of boards and finished work, you would be pretty apt to be told to get out of the way.



USE OF THE VEIL AND BEE-SMOKER.
(From The Honeybee.)

Now, you are to exercise the same common sense in an apiary, and not stand in front of a hive or anywhere in the bees' line of flight.

Avoid quick or agitated movements, striking at flying bees or jerking the hand back in fear of being stung. Last summer a toy windmill was placed near the yard to frighten birds from a cherry tree. It so enraged the bees, partly by its rapid motion and partly by being in their line of flight, that thirty or forty of them might be seen at any time buzzing about it, and darting at the revolving fans. Their especial enemy, as they seem to think, is the lawn mower, whose rapid motion in front of the entrances, even on cool days, often brings them out "like hot shot."

The smell of perspiration is very offensive to them. For this reason so-called sting-proof clothes and gloves are objectionable in hot weather, as they cause so much extra perspiration that the bees are almost sure to get in more stings at vulnerable points than through the clothing were light and cool. For myself, I prefer a complete suit of white cotton, and a bee veil, of mosquito bar with fine black net veiling before the face, attached to the edge of a broad-rimmed straw hat, and tucked into the clothing far enough down on the breast to stand out clear of the face. This, with a good smoker filled with rotten wood, and burning well, renders a person reasonably safe from stings.

To open a hive, blow two or three gentle puffs of smoke in at the entrance, and, having removed cover and cushion, blow smoke over the frames as you gently turn back the cloth, beginning at one corner. It may be necessary to smoke some down between the frames, but too much smoke will often cause the bees to run excitedly over the combs and perhaps out of the entrance. Then they become almost unmanageable, and even the queen may run out and be lost. Black bees, or those containing some Carniolan blood, are worse for "running" than pure Italians; but even they may lose their heads at times. When they start running it is often best to quit smoking altogether, go on carefully with your work, showing no signs of fear, and they will soon quiet down. Avoid jarring the hive at any time. Much depends on letting neither bees nor beekeeper become excited. By a little observa-

tion and judgment one soon learns how little smoke may safely be used, and exactly the right moment to apply it. Before lifting out a frame push those on either side of it over far enough to allow it to come out without rubbing or crushing bees. All combs should be straight and even to manipulate nicely. "Crushing bees fills the air with the odor of poison, which irritates the bees. So also when one bee is provoked to sting, others follow because of the odor of poison." ("The Honeybee.")

Unlike other stinging insects, the honeybee leaves its sting in the wound, so is only able to sting once, and usually dies soon after. The sting should be removed immediately by scratching with the finger nail or brushing against the clothes, else it would continue working in and injecting the poison into the wound. To grasp it between the thumb and finger would be to squeeze the last bit of poison into the wound. Do not rub or irritate the part in any way, as that only increases the swelling. The best remedy is to forget; but an application of cold water or cold wet cloths without friction is good in bad cases.

Above all, never allow horses to enter the apiary; for the bees will rush out at them and sometimes sting them to death, even at night.

VETERINARY.

Swamp Fever.

In reference to the disease, so common among horses in the Red River Valley, known as "swamp fever" (and for the investigation of which a special grant has been made by the Local Government, as noted in our last issue), the following notes taken from the annual report of the Manitoba Veterinary Association will be of interest:

Dr. Torrance (being asked for a report of the investigations he had been carrying on) said he had not intended to say anything on this subject until he had pursued his investigation further, but as the matter had been brought up he would tell the members briefly what had been done. A number of horses affected with this disease had been taken under his charge for treatment, and he had placed the opportunity of making careful clinical notes of them all, frequent examinations of their blood and urine, and post mortems on the fatal cases. Dr. Bell, the Provincial Bacteriologist, had taken the greatest interest in the work and had made cultures from the blood and tissues of a large number of them. Like other practitioners, he had been struck with the great clinical resemblance between this disease and "surra," and had hoped to be able to discover in the blood of some at least of the cases the surra parasite, *Trepanosoma Evansi*. However, in spite of countless examinations, taken at all periods of the fever, at night as well as in the daytime, they had been unable to find the parasite. He might mention that recently, through the kindness of Mr. H. L. Coote, he had the opportunity of examining a stained specimen of blood containing the surra parasite which had been sent to Mr. Coote from Burma, and the size and characteristic appearance of the parasite were so striking that no one could fail to observe it when present in fresh blood. He therefore felt convinced that whatever might be the cause of the disease, it was not surra. They had, however, found in the blood and tissues of these horses a large bacillus which differed in several respects from any hitherto described, and might prove to be the cause of the disease. Dr. Bell had several pure cultures of it, and they were only awaiting a suitable opportunity to inoculate a horse with it and see if they could reproduce the disease. The present difficulty was to procure a cheap horse that could be experimented upon. The germ might be pathogenic only to horses, so that inoculation of smaller animals could not be depended on.

An interesting discussion followed, in which Messrs. Rutherford, Thompson, Hurt, Stevenson and others took part, the consensus of opinion being that it is a very destructive disease of horses, and is prevalent in all the lower parts of the Province, causing very serious losses to the farming community. It also appeared to be more virulent in years of high water, when the meadow lands are flooded, and the connection between this disease and swamp grass and water seemed to be important.

It was then moved (and carried) by Mr. M. Young, seconded by Mr. W. A. Dunbar, "That in view of the importance to the farmers of Manitoba of discovering the cause of the diseases of horses known as 'swamp fever,' and thereby devising some means for its prevention and cure, be it resolved that this Association memorialize the Government of Manitoba to make a special grant to Drs. Bell and Torrance for the carrying on of this research."

Causes of Colic.

Horses which once suffered from colic are notoriously liable to re-attack. The disease is most frequently caused by sudden changes in food, by feeding at irregular intervals, by heavy meals given after long fasts, and by allowing the animals access to an unlimited quantity of water when in a heated condition. It is also caused by the presence in the alimentary canal of foreign bodies of various kinds: the calculi, or concretions of mineral matters often found in animals largely fed on inferior fodder or poor, badly cleaned grain being very often "at the bottom" of attacks of colic.