

Watering.—The plants are watered both in the morning and in the evening for about 10 days if there is no rain. Subsequently, watering is given once a day for another 10 days. The plants establish themselves by then and are watered twice a week. Till the next rainy season, the plants are watered once or twice a week according to the prevailing weather. In most cases plants are not watered in the 2nd year.

Other Cultural Operations.—The soil is loosened between the rows of plants during the second and third year by working the country plough. About 3 years after planting the lower branches of trees from 6' to 8' are lopped off and sold. The trees that do not come up well at the end of four years are removed and sold. This thinning, generally reduces the number by 25% to 35% and finally there will be about 1,500 trees per acre.

Harvest. The plantation is cut at the end of 8 to 10 years when each tree will fetch on an average Rs. 0—6—0 to Rs. 0—8—0 and thus a net income of Rs. 560 to Rs. 750 is obtained in an acre. The proceeds from the lopping of the trees and the proceeds from the sale of thinned out trees will generally cover the cost of seedlings, planting, watering and watchman's wages.

CHICKEN POX AND ITS TREATMENT *

By J. J. DE VALOIS,

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There are a number of diseases that work great havoc with the amateur poultry keeper in India especially in the villages where the vitality of birds at best is very low due to poor feeding, promiscuous breeding and bad housing conditions. In my experience I have found that chicken pox perhaps takes a larger toll than any other poultry disease. Its ravages are not considered so serious as that of fowl pest because it does not do its work as dramatically as the "Angel of death". This disease, like the poor, is ever with us and many people take it for granted as some do itch and scabies for example, or the proverbial fleas on a dog. * But anyone who has made a study of poultry rearing in the villages will agree with me that thousands of chicks, especially, are claimed by this disease every year.

In the early days of our poultry work I considered this one of the major problems we had to solve. As surely as the cooler days of January began to wane and evidences of the hot weather began to appear, chicken pox would be right around the corner to say her "How-do-you-do". After considerable experimentation we have learned to control this disease with considerable success and no longer consider it one of our major problems to deal with.

Prevention.—Prevention is again our best weapon of defence, as it is, in our poultry-disease control. Chicken pox has its very noticeable outward lessons and consequently many people think that it is an external disease like a pustule. This however is not the case as it is a disease of the blood and apparently makes its appearance without any communication from without. It naturally assumes a more virulent form when additional foreign bodies are communicated to the

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flock but many cases are known where infection took place without any contamination from outside. The first control I would suggest is to make an attempt to hatch and rear chicks early before the evil days are upon us. An outbreak of the disease in South India may be expected any time after the first of February. The disease is particularly trying for small chicks under two months of age. Older birds too are affected, but, for them it is not such a serious matter and the death rate is rather low. In villages I would estimate that 90 per cent. of chicks under two months of age are claimed by the disease from February to June. Consequently my strong advice to our village friends and others who experience difficulty is *hatch and rear your chicks before January first.*

Thriftiness.—Considering the preventive side of this problem further I would say a second policy to follow would be, to see that chicks at all times, but especially during the first six months of the calendar year should be kept in a good thrifty condition. Naturally a thrifty, well kept, healthy chick has a much better chance of resisting infection in the first place, or if attacked, to survive the shock that accompanies the disease. A poorly fed and cared-for chick is already in a weakened condition at best and if attacked by the pox has virtually no chance of recovery. At no time in the life of a chick or any other animal, man included, is proper care and feeding as essential as during the first weeks or months of that particular animal's life. No animal stunted during this period of its life ever fully recovers. Aside from any consideration of chicken pox, therefore, a young chick should be kept as healthy and strong as possible. If under-feeding and under-nourishment have to be practised, I beg you to postpone it till the chicken has had a chance to become well established the first two months. Proper care and feeding will very materially reduce the risk involved by an attack or threat of the disease.

Tonic for Prevention.—We have found that giving a good tonic from the middle of January will also go far towards preventing an outbreak, or if it does occur, to greatly decrease the severity of the trouble resulting. This tonic presupposes that the chickens are thrifty and being kept in prime condition. Unless that is done, any amount of "doping" will be useless. The following drugs should be finely powdered and mixed in poultry well:—

Epsom salts	... 8 Ounces.
Ferric Sulphate	... 4 "
Calcium Phosphate	½ "
Ground Ginger	... 3¼ "

Every 25 chicks of about 2 weeks of age should receive one teaspoonful of this preparation once a week. Larger and smaller chicks should be given proportionate doses. We find that withholding food on a given morning till about 10 a. m. and then mixing this tonic with the dry mash will ensure each chick getting its proportionate share if sufficient dish space is allowed so all can feed at the same time. As much of the mash as the chicks will clean up in a half hour should be given. The tonic should be given regularly on the same day every week beginning from January 15 and continuing till the danger of the disease is over, which we have found to be by the middle of June. This tonic will never do any harm however, and may prove useful at other times as well. We recommend it chiefly for chicks under two months of age although we feed it, more or less as a matter of routine, to all our growing stock in the early months of the year.

The drugs can be obtained at any good chemist but we have found that it is considerably cheaper to buy the raw ginger and grind it ourselves. This is not as pure as that coming from the Chemist's stock room but serves our purpose equally well.

Fowl Pox Immunity.—Immunity against fowl pox has been tried successfully for many years but was used only on adult fowls or birds half-grown until very recently. The Poultry Husbandry Department of Iowa State College has more recently experimented with the vaccine on day-old chicks with apparent success. Following their example we used it on 2000 baby chicks at our Farm at Katpadi and our results also were successful to a large extent. We did find that the chicks reacted to the treatment but the disease occurred in a rather mild form. The shock of the treatment did lower the vitality of the chicks so that I would not recommend it to a person who can control the disease successfully with the tonic and general thriftiness.

We made our own vaccine as follows:—One part powdered fowl pox scab secured from infected birds was mixed with 250 parts of a diluent made of:

40 per cent. glycerine

60 " " 0.85 per cent. sterile saline solution. (We used a concentrated saturated saline solution).

A small patch of fluff is plucked from the breast of the chick and slightly scarified to obtain a successful infection and uniform reaction. The vaccine is applied to the skin and feather follicles with a stiff brush. The chicks should be isolated in a dark room for a day or two following the treatment to prevent cannibalism by picking at the wound. Here again success will depend in no small measure on the general health of the youngsters both before and after treatment.

I should like to say that our experiment has not been tried sufficiently long to enable us to make any dogmatic statements, but our limited experience does lead us to believe that this simple treatment may perhaps prove a real boon to the village poultry-raiser in India who can secure the service of an interested party to demonstrate the manner of treatment on a commercial basis perhaps.

Summary.—To summarise my brief remarks I should say:—try to raise your chicks in October, November and December, push them all you can the first two months at least, giving them the tonic from the 15th of January for several-month and as a last resort, fall back on the immunization work to protect our feathered friends.

THE SANITARY DISPOSAL & AGRICULTURAL UTILISATION OF HABITATION WASTES BY THE INDORE PROCESS

By F. K. JACKSON & Y. D. WAD

Detailed Technique.

Installation.—The essential part is the charging trench, which should be fifteen feet wide, and two feet deep. The floor must slope gently along its length to prevent water-logging, and must discharge into a natural drainage channel. It must be served by a road to be used as a charging platform running alongside. This road may lie between two trenches, serving each, and usually the most economical construction is to dig the trenches one foot deep and pile enough of the excavated earth to make the road foundation. The road should be at least fifteen feet wide (preferably twenty feet) and suitably metalled to stand carting in wet weather. The side of the trench against the road must be vertical and should be reveted with timber or a wall of stone or brick, the top of which should carry a sill of suitable material (e.g., old steel rails, girders, or heavy logs) against which carts can back. Without this sill a log must be put in position at each tipping.