

WOOL YIELD IN SOUTH INDIAN SHEEP

By P. K. KRISHNAN NAMBIYAR

(Assistant Farm Manager, Chintaladevi)

The economic aspects of rearing sheep as a side industry in Southern India have already been published in the *Journal of the Textile Institute*, Vol. 19 of 1928, article 5 (a). The experiences and facts gained during the last few years of sheep rearing in Hosur compared with the local practices in South India have now made clear that something more can be expected from the indigenous breeds of Southern India, both in the form of mutton and wool, towards the betterment of the shepherds and ryots of this country.

The proper methods of breeding, rearing and management of sheep have already been mentioned in the above noted Journal. The present consideration is about the wool yield in sheep. It is true that a shepherd or a ryot can expect a better yield than what he obtains at present under the existing conditions, by adopting the methods already mentioned. The points favourable to the Bellary breed must also hold good for every other breed in Southern India.

The rapid deterioration of wool in these breeds was mainly due to want of proper knowledge in the art and partly due to the neglect of this industry by the well-to-do ryots. The factors that affect the economical aspects of any particular breed with regard to its wool yield are: 1. colour; 2. quantity; 3. quality. Many shepherds and ryots of these parts know that the market value of their wool depends on the above factors; yet they do not seem to try any means to overcome their difficulties on these points.

Colour. The wool in the market is generally graded in three different colours, namely white, black, and mixture. White wool fetches a better price than the other two, being more attractive. The other advantage of the colour is that it can be dyed with any other desirable colour unlike other kinds. Black stands second and lastly the mixture. It is only the last sort (mixture) that is found in large quantities in South India. One can only attribute this to the absence of pure breeds in the locality.

The colour of a particular breed can be kept up by rigorous selection and careful breeding. The details of colour inheritance is of very little use here, as it is beyond the scope of an ordinary ryot to conduct any experiment on this at present. But it is easy for them to select only pure ones from their flock, no matter whether they are whites, black-faced whites, or blacks, and to get them mated by pure ones of the same colour. Even then they may find some undesirable colours appearing here and there. These can be weeded out every year. Thus by continued efforts it will be possible to maintain a pure colour in a flock.

A flock possessing white fibres, whether it be a pure white or a black-faced white, is of more advantage as these do not turn into any other colour unless much advanced in age which of course is out of consideration as they are not generally kept unsold beyond 6 years of age. But black fibres turn grey from 3rd clipping onwards, and after that it can only be classed under

mixture. Mixture of course is far inferior and even the ryots dislike it. This is the outcome of a careless breeding and management.

Quantity: The condition and yield of the present flocks of sheep in these parts and the causes that led to such a rapid deterioration has already been explained before. The present consideration is whether one cannot increase the wool yield in South Indian sheep, if not reach the maximum yield which a particular breed is capable of putting forth. This can be obtained if the ryots and shepherds are a little more careful in noting the following main factors that induce the maximum yield in any particular breed: 1. Selection and Breeding; 2. Feeding, 3. Management, 4. Clipping, 5. Dipping.

Selection and Breeding: A ryot after having isolated a particular colour, say, white, or black-faced white, or black from his flock, his business is to see that he keeps only good woolly sheep having a few qualities of mutton class as his breeding stock because his main idea is to keep an animal capable of producing both mutton and wool at one and the same time.

These can be easily picked out by himself as his eyes are liable to be trained in this by constant attention to his flock. But to an inexperienced man the following points will help to spot out the desired sheep from his flock. A square shaped body with well spread ribs, straight and flat back with broad pelvic regions, short legs and neck with dense and compact fibres on the neck, belly and legs. They must also have a hardy muscular and quick growing nature or disposition. Quick growing or early maturity from a mutton point of view means not only weight for age, but also a quick change in the proportions of the parts. After having selected a flock of quick growing sheep with a good average wool yield, his next efforts must be to maintain it by careful breeding. This he can do by using proper breeding rams on his flock as sires and also by continued elimination of the undesired characters.

Feeding: The details of food stuffs, the time and methods of feeding etc. were already dealt with in the above-mentioned article and a repetition of the same is only superfluous. It is enough if the ryots and shepherds will only adhere to it for a satisfactory result. Proper feeding is an important factor where the health and wool yield of sheep are considered. Both overfeeding and underfeeding are bad as far as wool yield is concerned. In overfeeding not only there is waste of foodstuffs but may also lead to accumulation of more yolk in the fibre which will affect the market value of the wool produced. Further, overfeeding on rich concentrates may lead to so many other troubles, such as jaundice, diarrhoea, dysentery etc. Underfeeding is naturally detrimental to the health and wool yield of sheep. It will also be difficult to select a proper class of wool yielding sheep from flocks brought up under bad nutritive conditions.

Management: This is another factor that affects the quantity and quality of wool yield. Sheep are very timid in their habits and very easily frightened. Harsh treatment and rough handling will not only arrest their desired body growth and wool yield but will also lead to the abortions in pregnant ewes and discolouration of fibres in the clippings that follow the one on hand. For instance, a white sheep may put fresh black or pigmented fibre in places wherever it was injured by such treatment. Similarly a black sheep may produce grey or pigmented fibres in place of black ones. The real cause that leads to this kind of behaviour in sheep has not yet been fully understood.

Too much exposure to inclement weather is also detrimental to their health and will naturally tell upon the quantity and quality of wool produced

by them, as healthy animals alone can produce normal fleece. Further, if they are exposed to too much rain, the quantity of yolk present on their wool fibres will be washed away and will not only feel harsh to the touch, but also will be kept open for the harmful insects such as ticks, lice etc., and foreign matter to enter into and make a comfortable shelter in the body of the sheep.

Clipping: This is not at all practised in some parts of Southern India. In some places sheep are clipped only once and in some other parts they are clipped twice a year and these too in an indiscriminate fashion. The owners do not observe any definite season or weather for shearing their sheep and in most cases instead of this (clipping) being advantageous on both the sides, leads to harmful results such as pneumonia, catarrh, exhaustion, congestion of lungs etc., especially among young stock, between six months and two years.

The proper seasons for clipping are just a fortnight before the commencement of summer, i.e. in March and a couple of weeks before the commencement of winter, i.e. in October. Twice clipping is more advantageous as it facilitates two dippings every year; a necessity in South India, wherein frequent access of harmful insects on their bodies are observed. The clippings in the above seasons will also induce nature to accelerate the wool growth in sheep.

Methods of Clipping: The local practice of shearing sheep is by hand-shears known as spring-grass-shears or sheep-shears. These can be made locally or can be obtained from Messrs. T. E. Thompson & Co. Ltd., Calcutta for Rs 2-8 per pair. By this practice about $\frac{1}{2}$ an inch of wool is left in the body itself, as there are no expert sheavers at present in South India. Hence a full yield is not generally obtained. Further, the harmful insects and the foreign matter adhering to the body are retained on the body itself leading to subsequent troubles. It is also difficult to study the condition and health of the animals as the body is always covered with some quantity of wool.

These difficulties can be got over by using a 'Lister sheep shearing machine' which can be obtained from the Army and Navy Stores, Bombay, for Rs 166 packing and freight charges extra. In this case the wool fibres are clipped very close to the body and the whole surface is exposed; so much so all the foreign matter and the harmful insects adhering to the body fall off with each clipping and gives a fresh start for the fibres to grow. It will also be easy to study the condition and health of the animals in addition to the full yield obtained at each clipping. The labour and time taken to shear one animal in this case is much less even to an ordinary trained hand than in the previous case. But the one disadvantage is the initial cost of the machine which is really beyond the scope of an ordinary ryot. But this can be remedied by purchasing it under a co-operative basis. The machine is very simple and an ordinary cooly can handle it.

Dipping: This is generally practised after a fortnight or so from the date of clipping. The main objects are;

1. to destroy ticks and lice
2. to prevent flies and other harmful insects entering the wool fibres;
3. to heal slight wounds, scabs etc.;
4. to promote the growth of wool.

The best sheep dipping powder in the market at present is the 'Cooper's Sheep dipping powder' which can be obtained from Messrs. Best & Co. Ltd., Madras, for Rs 1-10 per packet. This contains 17 per cent of arsenic and 68 per cent of sulphur. The remaining quantities are: Arsenic present as trioxide and pentoxide and Sodium combined with the above two.

This is highly poisonous and (a few drops of the same solution) if taken in, may cause even the death of the animal. The proper solution for the first dip is one packet in every 25 gallons of fresh water, and for the second, one packet in 50 gallons of fresh water. The directions with regard to the preparation of the bath and its use etc. are given on the packet itself. Two dippings were found necessary in one and the same season for a satisfactory result; the first being 50 per cent stronger than the second. An interval of two to three weeks is sufficient between the two dippings. This will certainly kill the then existing ticks, lice etc. on their body and will also cure slight wounds and scabs. The sediments of arsenic and sulphur that adhere to the body and on the wool fibres will emit a strong and prohibitive smell so as not to allow any further entrance of such insects into the wool fibres till the clipping that follows. Hence a better growth of wool is generally obtained, as there will be no other agency working against it.

The expense of dipping is very little when compared with the numerous benefits derived from it. A bath prepared out of 6 packets will be enough for at least 300 sheep for the first dip and three packets in 150 gallons for the second dip. On the whole it works out at less than 9 pies per head per year, which of course is within the limits of every ryot of this country.

There are two different opinions with regard to the disposal of the lotion left after dipping. Some say that the lotion can be utilised for disinfecting stalls, while some others are of opinion that this may lead to troubles afterwards, as the bits of wool fibres shed while dipping and these, mixed with arsenic and sulphur are likely to be licked up by the animals from the stalls. Emptying the lotion into the same pit where the bath was sunk and mixing it with earth seems safest as the removal of wool fibres from the lotion is difficult either before or after using it as a disinfectant.

Quality: The quality of any wool sample is determined by (1) Its fineness and pliability, (2) Presence of yolk, (3) Density, (Length of staples) (5) Purity, (6) Soundness.

The fineness and pliability mainly depend on the quantity of yolk present on the wool fibres. If there be a dry harsh touch the wool is said to be lacking in yolk. The proper quantity of the same gives it the necessary pliability and retains a normal healthy lustrous condition of the wool fibres. When the secretion of the yolk is ample the scales on the fibres retain their close fitting position, the lack of which makes the scales stand apart and gives a harsh touch. This state is said to be the character of a dry unhealthy fibre. A well-fed and properly managed sheep exhibits the fineness and pliability of wool fibres as well as the healthy condition of its body. A diseased or ill-fed sheep usually has very objectionable fibres because of the weakness of its body, and the crimp of its wool fibres will also be irregular. In a well fed healthy sheep, the crimp will be uniform and will be very agreeable to the touch.

Yolk: Yolk is an oil secreted by oil glands. In fine woolly breeds this is said to be in abundance, which gives a lustre to the wool fibres. Sheep under healthy conditions show a uniform distribution of the same throughout

the wool fibres. This is very limited in South Indian breeds for want of proper feeding and management.

Density : This refers to the closeness of fibres in sheep. If the fleeces are not compact, it not only reduces the weight of the wool but will also keep the fibres more open resulting in lack of proper protection to its body. It will also be very easy for foreign matter to find an access into and will be difficult to get rid of them afterwards.

Length of Staple : That the length of the fleece varies according to the breed, quality, and seasons of clipping is well known. For instance, the staples in Bellary sheep are longer than that of Kollar sheep. But when fineness is taken into consideration the Kollar's is superior to that of the Bellary sheep. Further, it has also been observed elsewhere that fine wool is always a little shorter in length than the coarse stuff. Lastly from the experience gained at Hosur, it has been observed that the October clip is always a little bit longer than that obtained in March.

Purity : The wool fibres clipped from the sheep must be free from dirt and foreign matter, so as to afford a neat presentation of the same to the market. It must also be of a lustrous healthy colour, and devoid of kemp fibres. It is for this the sheep are given a bath and thorough washing just a few days prior to clipping. There should not be any dead fibre lurking inside the stuff as this will reduce the market value of the whole stuff to a large extent.

Soundness : This is important to the manufacturers as it is only the sound wool that produce good clothes. Irregularity in the strength of the yarn is highly objectionable when the manufacture of good clothes is concerned. Hence there should be uniform strength throughout the length of the fibre produced by sheep and this can only be attained by proper feeding and management. During disease or at the time of temporary illness, the fibres that are thrown out from the body surface are thinner in structure and weaker than those growing at normal times; so much so, that a single fibre has been observed with gradations of thickness and variations in structure in a particular clipping in such sheep which went through a short period of illness. Irregular feeding may also lead to similar results. These contribute largely to the brittleness or other poor quality features in the wool fibres.

Having known the brief methods of fixing a satisfactory wool yield with a decent capacity for mutton production in any particular breed of sheep in Southern India, it is but natural that one should entertain the curiosity to learn how far the Livestock Section of the Madras Agricultural Department have succeeded in producing the wool of the desired type. The facts mentioned above are mainly based upon the practical experiences gained and the observations made at the Hosur Cattle Farm during the last few years of sheep rearing. The regular increase in the wool yield shown in the statement below is the result achieved after a faithful and patient trial based on the above points during these years.

In addition to the increased quantity of wool obtained, we can also say that we have made some progress with regard to the quality of wool as well. But to give definite information on this it is very difficult as we did not keep any data either in the beginning or afterwards as it was not found to be of much importance at this stage in this country.

Statement of Wool Yield

Year	Maximum	Average
	lbs. oz.	lbs. oz.
1924	...	1 5½
1925	...	1 9½
1926	2 12	2 0
1927	3 8	1 15
1928	5 3	2 4
1929	7 2	2 6
1930	7 8	2 5

RURAL RECONSTRUCTION

By MR. N. SIMHADRI

(Deputy Inspector of Schools, Proddatur)

Actuarians have it that 90 per cent of the Indian people live in rural areas while only 10 per cent of it constitute the 'Intelligentsia.' India is predominantly an agricultural country and the majority of the people must remain agriculturists. The efforts of both the social ameliorist and the political worker need to be concentrated as the *Times* says 'upon promoting an enquiry which concerns the welfare of over four-fifths of the three-hundred and twenty millions of people who inhabit India.' The rural world has need of fundamental change if it is to be saved from decay—change both in its 'economic structure' and in its 'philosophy of life.'

On a careful analysis of the rural conditions it will be found that the question resolves itself into two broad issues, viz., (1) economic, (2) cultural. The attention of the public workers or of any humanitarian leagues should first be converged upon these two aspects, for it is only on the improvement of their distressing economic situation and on the change in their outlook to raise the standard of living that the condition of this vast multitude can be made more enviable. It is only by such progress of evolution that the country can make more rapid strides on the path of progress and contribute more substantially for its constitutional and economic history.

The produce of land being the principal means of subsistence for the masses, it becomes obvious that the return which the agriculturists get for their labour all the year round is a very important question. In fact the system of land tenure affords the key to their economic prosperity. Greater security of tenure and fixation of rents on more equitable basis would give greater incentive to cultivators to improve their land. A great percentage of ryots are tenant-cultivators and unless the landholders are moderate in their demands for rent, the poor cultivators will be led to ruin due to unequal conflict and the lands being excessively infeudated become indifferently cultivated eventually leading to non-payment of rents, and the consequent trouble of civil courts. When village Panchayats become the universal feature of villages such matters may fitly be left for their decision. The great drawback of Indian agriculture is that it does not pursue scientific methods of agriculture. Agricultural development, if development it is, has more or less