

NARI Suwarna sheep

The [Nimbkar Agricultural Research Institute](#) has developed the NARI Suwarna strain of Deccani sheep with the ability to produce and rear twin lambs. NARI Suwarna ewes have about 90% Deccani breed proportion or 60% Deccani and 30% Madgyal and only 10% Garole breed proportion. Madgyal breed is from the border region of Maharashtra and Karnataka. This breed is tall, larger than Deccani and faster growing. NARI Suwarna sheep have faster growth rate because they are selected for higher growth and also because of the addition of Madgyal genes. NARI Suwarna ewes are capable of producing and raising twin lambs to a weaning weight of 13-15 kg each (total weaning weight 26 kg) in 3-4 months, with a little supplementary feeding. It is our experience that NARI Suwarna sheep respond extremely well to good feeding.

We have also developed a strain of sheep 'NARI composite' similar to NARI Suwarna which has some proportion of the Awassi breed from Israel. Awassi is also a large size breed and faster growing than Deccani. Therefore NARI composite also grow faster.

Using NARI Suwarna ewes to increase litter size in your flock

Keeping NARI Suwarna sheep will help you to increase flock size quicker because you will get an average litter size of about 1.6 (i.e. 16 lambs per 10 NARI Suwarna ewes). You can cross NARI Suwarna sheep with local sheep. NARI Suwarna ewes have the ability to give twin lambs because of the FecB gene (twinning gene) that they carry. Some NARI Suwarna sheep carry one copy (heterozygous) while some carry two copies (homozygous) of this gene. All lambs born to NARI Suwarna ewes having two copies of this gene will inherit this gene which means they will have the twinning characteristic. Half of the lambs born to ewes carrying one copy of the FecB gene will inherit this gene while the other half will not inherit it.

Using NARI Suwarna rams to increase litter size in your flock

If you breed your local sheep with a NARI Suwarna ram carrying two copies of the FecB gene, all the lambs sired by the ram and born to the local ewes will inherit one copy of the gene and the twinning characteristic. 25% of the lambs born to NARI Suwarna ewes having one copy of FecB gene and sired by a ram having one copy of the FecB gene will have two copies of the FecB gene. (see Table below.)

By looking at NARI Suwarna rams or ewes, one cannot identify heterozygous and homozygous animals. There is a PCR-RFLP DNA test to detect the genotype at the FecB locus.

The advantages of NARI Suwarna sheep are that their average litter size is 1.6 and they can lamb every 8 to 10 months. With good feeding the weights of twin-born lambs are similar to those of single lambs. That is why NARI Suwarna sheep wean about 1.5 times as much weight of lamb as Deccani sheep. NARI Suwarna sheep are also adapted to harsh conditions. The lamb weights will be lower if conditions are harsh.

Table 1: Summary of expected genotypes of the progeny born to ewes of different FecB genotypes mated to rams of different FecB genotypes

FecB^{BB} = carry two copies of the FecB gene (homozygous)

FecB^{B+} = carry one copy of the FecB gene (heterozygous)

FecB⁺⁺ = do not carry the FecB gene (non-carrier)

Ram Genotype	Ewe Genotype	Expected genotype of lambs	Remarks
FecB ^{BB}	FecB ⁺⁺	100% FecB ^{B+}	Genotyping of lambs born is not required
FecB ^{BB}	FecB ^{B+}	50% FecB ^{BB} 50% FecB ^{B+}	Genotyping of lambs born is required
FecB ^{B+}	FecB ^{B+}	25% FecB ^{BB} 50% FecB ^{B+} 25% FecB ⁺⁺	Genotyping of lambs born is required
FecB ^{B+}	FecB ^{BB}	50% FecB ^{BB} 50% FecB ^{B+}	Genotyping of lambs born is required
FecB ⁺⁺	FecB ^{B+}	50% FecB ^{B+} 50% FecB ⁺⁺	Genotyping of lambs born is required
FecB ^{BB}	FecB ^{BB}	100% FecB ^{BB}	Genotyping of lambs born is not required
FecB ⁺⁺	FecB ⁺⁺	100% FecB ⁺⁺	Genotyping of lambs born is not required

On our farm, NARI Suwarna twin lambs of four months age achieve a weight of 16 kg each and NARI Suwarna twin ewes of one year age achieve a weighing of 20 kg each. These weights can be achieved when:

1. the ewes are given good feeding from 2 months before lambing until weaning of lambs.
2. ewes and lambs are managed properly.
3. lambs are given green lush high protein green fodder such as Lucerne or Subabhul as soon as they start eating.
4. Lambs are given supplementary feeding (half of this can be maize grain and half a pelleted concentrate) – starting from 50 gm per day at 1 month age to 200 gm per day after weaning at 3 months to 300 gm per day after 6 months up to 1.5 years age for ewe lambs retained for breeding.

The ideal weight of sale of sheep for meat depends on the preference of the market where you are going to sell the animals. Their growth rate is very fast up to 4 to 5 months age and after that it reduces a little. Therefore, you need to decide when to sell them according to market preference. The weights given above are achievable in properly fed NARI Suwarna sheep.

Management of NARI Suwarna ewes: NARI Suwarna ewes have to be given supplementary feeding in addition to grazing, to maximize the benefits from them. The young ewes will have to be given supplementary feeding of about 200 gm per day (100 gm maize grain and 100 gm pelleted concentrate; if possible, they should be given 50 gm cotton seed cake and 50 gm pelleted concentrate) from the age of about 3 to 4 months until they are 1.5 to 2 years old. They can be bred once they weigh more than 25 kg. If they have adequate grazing or fodder, they do

not require supplementary feed in early pregnancy. However, it is very important to start supplementary feeding (200 gm per ewe as above) three months before lambing and continue this after lambing until lambs are weaned. You should make small pens to keep the ewe and lambs together for 2-3 days after lambing so that they form strong bonds and suckle the lambs properly. Lambs should be given succulent nutritious fodder such as leucaena (subabul) leaves or lucerne fodder until they are sold or until they are 1.5 years old if you are keeping them as replacements. Lambs should also be given maize grain and pelleted concentrate, the quantity of which should be increased gradually as their appetites increase. Only good management will give you good growth rates and healthy animals.

Our experience is that FecB^{B+} ewes are more productive than FecB^{BB} ewes. It is therefore our advice that there should not be too many FecB^{BB} ewes in a flock. FecB^{BB} ewes should therefore be mated only to FecB non-carrier rams and the resulting FecB^{B+} ewes maintained for further breeding.

Health care

Table 2: Vaccination schedule followed at NARI

Vaccine	Age at first vaccination	Remarks
Enterotoxaemia	3 weeks	Booster after 15 days and yearly thereafter
PPR	3 months	Once in 3 years
Haemorrhagic septicaemia	6 months	Every 6 months
Bluetongue	3 months	Killed vaccine produced by IVBP, Bangalore, Karnataka, Every year

Vaccinate sheep against Sheep Pox and FMD only in case of an outbreak in the vicinity.

NARI Suwarna can survive in Andhra and Tamil Nadu if properly fed and managed. In Mallasamudram near Namakkal in Tamil Nadu, Mr. Gunasekaran has crossbred Mecheri ewes with **NARI Suwarna** rams and is earning a good income. Shri Doddaraju, a farmer and sheep rearer from Veerapura in Sira Taluka, Tumkur district in Karnataka purchased 10 pregnant FecB gene carrier **NARI Suwarna** ewes from the Nimbkar Agricultural Research Institute's (NARI) Animal Husbandry Division on 11 July 2014. Dr. G.M. Nagaraja, Assistant Director, Animal Husbandry Department, Karnataka govt. told him about **NARI Suwarna** sheep. All ten ewes lambed in August and had 23 lambs in total (four had triplets, 5 had twins and one had a single lamb). One ewe fell sick; so unfortunately two of its three lambs died but 21 lambs are alive and well as can be seen from the photo below. Shri Doddaraju says that he would have got less than 10 lambs from 10 local ewes but he got more than two lambs per **NARI Suwarna** ewe. He is giving a small quantity of supplementary feed to the ewes with multiple lambs to ensure a good supply of milk for the lambs. He is looking forward to selling the lambs at a good price in three months' time. He may be able to sell some of them for breeding (as they are all carriers of the FecB gene) which will bring him a higher price than selling for slaughter.

We have available for sale, **NARI Suwarna adult rams (3-5 years old and weighing 45 to 50 kg each), carrying one copy of the twinning gene (FecB or Booroola) for about Rs.15,000 each.** Rams carrying two copies of the gene will cost Rs.25,000 each. **NARI Suwarna ewes** are also available for about Rs.10-15,000 each. NARI's Suwarna [program in Karnataka is shown here.](#)



Shri Doddaraju's 21 lambs born from 10 NARI Suwarna ewes in Tumkur Dist, Karnataka

For transporting NARI Suwarna animals from Phaltan, it is better to bring a vehicle from your place. However, if you would like to hire a vehicle, there are two transporters in Phaltan who usually transport our animals to distant places. Their details are given below. Please contact them directly.

- 1) Shaikh Transport. Contact person: Mr. Ayyaj Shaikh. Mobile Nos.: 9881675513 / 9423322139. (Vehicle – Tata Tempo 407)
- 2) Mr. Santosh Natha Tambe – Mobile No. 9767872398 (Vehicle – Tata Pick-up tempo)

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