



# Role of Sheep Penning in Organic Farming



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## Introduction

Sheep penning is one of the traditional methods of enhancing soil fertility. Penning is a fascinating cooperative effort between shepherds and farmers. Penning is an important traditional practice and more than 57% of farmers follow the practice at least once in 2 years. This practice involves camping of cattle, sheep, duck, etc. in the crop fields over night or days of nights after the crop harvest. Although the first mention about the use of animal manure is made by Great Poet 'Thiruvalluvar' in his poem Thirukkural in 70BC along with green manuring and sheep penning. The pastoralists perm their flock in the field overnight. The faeces and urine of the flock is deposited on the farmer's field. This is rich manure and is incorporated into the shallow depth of soil by working blade harrow or cultivator or cultivator.

## Role in organic farming

One of the practices for Organic farming is Penning. Sheep penning is getting popularized in the field of organic farming as a best soil management practice on account of their no cost manure. Fresh sheep dung contains 0.5-0.7% N, 0.4-0.6% P, 0.3-1.0K and Sheep urine contains 1.5-1.7% N, traces of P, and 1.8-2.0K. A herd consisting of 250 number/ acre under rainfed condition will save 70-80% of the total nutrient requirements.

## Penning theory

The sheep get their feed from field and field is enriched with nutrients and loads of microorganisms act on them to turn the soil more fertile than before. As the activities of various organisms increase in the soil makes it more porous. The physical properties of the soil are found to be greatly improved after every penning.

The number of sheep/goat in one flock varies from 100s to 1000s. Bigger flocks have 4000 sheep and owned by 10-15 people. The penning starts in the evening where the sheep/goats are made to assemble in a selected field. They are brought in such a way the kids are with mothers. Penning is found to turn soil into more fertile than before and any crop can be grown after sheep penning. Also the root grub dies due to the power of sheep urine. The urine

reduces salinity in the soil. Grazing of the sheep/goat in the field helps the field with fewer weeds which would have turned into menace.

The farm produces are found to be of good quality and tastier compared to produces from non-penned fields. The weight of the grains from the penned fields is more. Penning is a fascinating cooperative effort between pastoralists and farmers. Sheep penning is usually done between November and June and can be adopted both in irrigated and dryland conditions.

## Feeding

Penning sheep are allowed to graze, extensively up to a radius of five to eight kilometres for seven to eight hours during day time in the harvested fields. The main sources of grazing are stubbles, weeds, herbs and grasses. No concentrate supplementation is given to the lambs or adults during the penning period. Even young lambs are sent for grazing after 15 days of birth along with adults.

## Housing

No housing is provided for the migratory/penning flocks. The sheep are penned in the open in harvested fields during nights and fenced with nylon nets of about four to five feet high supported by iron rods. The area of fencing for an average flock (size of 500) is 25x20metre. Penning site is changed almost every day and during the time of changing, the sheep are let loose in the empty fields. The ewes in advanced pregnancy are also sent for grazing along with the flock. The new-born lambs are housed in the lamb hut up to 15 days during daytime and are allowed with their dams during night. Then the lambs are joined with the adults. Lamb hut is usually made up of Palmyra fronds supported with bamboo or Vitex negundo sticks inside and is placed within the fence in the migratory flocks.

## Case study from cauvery delta region of Tamil Nadu, India

There is a great demand for penning and night folding of sheep in harvested rice fields of Cauvery Delta regions of Tamil Nadu, India to enrich the soil. After the harvest of kuruvai (July), samba (August)

and thaladi (September) rice in the Cauvery deltaic regions, land is put under fallow for a period of three months from April to June. By that time migratory flock owners from Ramnad and Sivagangai districts are preferred to camp in the deltaic regions.

Most of the sheep farmers enter a goodwill contract with local village heads, so that no other new flocks are permitted to enter

for grazing and penning in that village. This contract existed for many years. The sheep farmers in-turn sponsored some programs associated with village temple festivals. The farmers reported that they get handsome revenue by penning in harvested paddy fields compared to other cropping. Next to paddy, coconut farmers invite sheep farmers to night fold in their coconut gardens for manure.

**Penning agreement**



**Figure 1:** Sheep penning in coconut field.

There is a tradition of compensating the shepherds during the penning, either by cash, kind or both. The farmer in whose field penning is being done would supply food materials, two times a day. Shepherds cook on their own. During penning, dogs guard the sheep during night. These dogs watch over a radius of 1km when the sheep graze in the fields. The dogs live along with the sheep from the beginning. The dogs are raised with a power to kill fox, wolf and rabbits Figure 1.

**Pest management**

In the soft soils, if the trampling is done with sheep due to penning, the soil particles get bit closer giving grip per plant, and if penning is done in rains it kills the root grub). The root grub dies due to the power of sheep urine.

Sheep night penning combined with grazing is often used for weed control. Large increases in soil fertility from the addition of sheep excreta led to the removal of the weed population, in accordance with the ecological theory of disturbance and evolution. Penning for eight consecutive nights was shown to be most efficient for elimination of natural vegetation and succeeding pasture establishment in the rainy season. After penning nights, the ground was completely covered with sheep excreta and the native herbaceous weed species were completely removed. A high

concentration of nitrogen in fresh sheep excreta could have been a major contributor to the vegetation change. The concentrations of ammonium N and nitrite N in the soil were high enough to be toxic to plant roots during and after sheep night penning. The loss of nitrogen occurred immediately following urine application to soil, this pulse of denitrification being attributed to the large increase in soil water soluble carbon levels and decreased O<sub>2</sub> status that were not conducive, and sometimes even toxic to plants.

**Sheep penning -merits and impacts**

1. The penned field will be fertile. Due to the manure of sheep, activity of 10 different type of organisms increase in the soil which makes it more porous.
2. There will be less grass except for few acacia plants which can be easily pulled off.
3. Sheep can identify the saline patches. It's urine reduces salinity in the soil.
4. The hibiscus grown in farmyard manure applied fields and the sheep penned fields, when cooked even without using any oil, is tastier and unique as compared to the chemically grown hibiscus.

5. The weight of the grains from the penned fields is more.
6. The crop in the penned field looks different compared to unpenned fields.

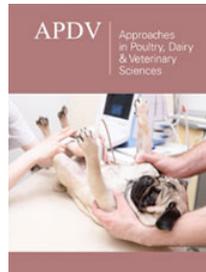
Besides the advantages of improved soil health, the sheep are also considered as a source of quick cash and can be sold when in need of money. Sheep penning will be a boon for organic growers in reducing the manure requirement.



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