



POPULAR SCIENCE ARTICLE

How to Manage Crop Fields During Summer for Better Yields

Kommula Uday^{1*}, G. Shashidhar², B. Nithin³, Boya Manikanta Naidu³, G. Sai Kiran⁴, Kommula Srija⁵

¹Division of Genetics and Plant Breeding, ICAR-IARI, New Delhi, off-campus, ICAR-Central Research Institute for Dryland Agriculture (CRIDA), Hyderabad

²Department of Agronomy, PJTAU, College of Agriculture, Rajendra nagar, Hyderabad

³Department of Genetics and Plant Breeding, PJTAU, College of Agriculture, Rajendranagar, Hyderabad

⁴Department of Plant Pathology, PJTAU, College of Agriculture, Rajendra nagar, Hyderabad

⁵Department of Vegetable Science, Sri Konda Laxman Telangana Horticultural university, Mulugu, Siddipet.

*Email: kommulagenome@gmail.com

Received: 25 April 2026

Revised: 27 April 2026

Accepted: 03 April 2026

Published online: 07 April 2026

Article ID: SR01115

Citation: Uday, K., Shashidhar, G., Nithin, B., Naidu, B. M., Kiran, G. S., & Srija, K. (2026). How to Manage Crop Fields During Summer for Better Yields. *Scientia Review*, 2(5), 4-6

Abstract:

Summer is an important season for preparing agricultural fields to achieve better yields in the coming cropping seasons. This article explains simple and practical field management practices that farmers can follow to improve soil health and productivity. Key steps include proper management of crop residues without burning, deep summer ploughing to control weeds and pests and soil testing to ensure balanced nutrient use. The use of organic manures and cultivation of green manure crops like sunhemp and dhaincha help increase soil fertility and organic carbon. The article also highlights the importance of maintaining bunds, drainage channels and controlling rodents. By adopting these low-cost and eco-friendly practices during summer, farmers can improve soil quality, conserve resources and achieve sustainable crop yields.

Keywords:

Summer management, Soil fertility, Green manure, Crop residues, Organic farming, Higher yields

Introduction:

To achieve good yields, the key factors are crop varieties, crop management, favourable climatic conditions, and soil fertility. During Kharif and Rabi seasons, in order to obtain higher yields from different crops, farmers are widely using chemical fertilizers. As a result, soil health is declining, leading to reduced fertility over time. Along with this, problems such as reduction in soil organic carbon, changes in soil pH (becoming acidic or alkaline), and reduction of beneficial microorganisms in the soil are occurring (Lal, 2004; Six *et al.*, 2002). To overcome these problems, farmers should follow certain management practices in crop fields during summer.

1. Management of Crop Residues and Wastes

If crop residues of the Rabi crop or previous crops are left in the field, the pupal stages of pests (for example pink bollworm, gram pod borer, tobacco caterpillar) and disease-causing fungi remain on the residues and may spread to the next crop. Therefore, after harvesting, residues should be incorporated into the soil

using a rotavator or shredder, or removed from

the field and decomposed to convert into organic manure.

Incorporating rice residues improves soil organic carbon over time. It also enhances the availability of micronutrients such as zinc, copper, iron, and manganese. By incorporating cotton crop residues into the soil, the activity of beneficial microorganisms increases, moisture retention capacity improves, and the crop can withstand drought conditions (Behera *et al.*, 2024; Six *et al.*, 2002). Under no circumstances should crop residues be burnt in the field. Burning damages the soil surface layers, reduces soil fertility, and leads to soil degradation (Pimentel *et al.*, 1995).

2. Summer Deep Ploughing: Preparation for Early Rains

Unlike regular ploughing, deep ploughing should be done during April–May, using a disc or mould board plough, ploughing should be done across the slope at a depth of 30–40 cm, one or two times at an interval of 15–20 days, once in two years. This provides various benefits.

- Temporary hard layers formed on the soil surface are broken.
- Water infiltration capacity and water holding capacity increase.
- Soil becomes loose and fertility improves.
- Weed seeds and underground parts present in the field are destroyed due to high summer temperature.
- Dormant stages of pests are destroyed, reducing pest problems.
- Soil organic carbon percentage increases (Lal, 2004).

3. Soil Testing: Nutrients Required for Crops

Soils naturally contain some nutrients. To determine the quantity of nutrients available to crops and to implement balanced fertilizer management in upcoming crop seasons, soil testing should be done. Summer, after harvesting crops, is a suitable time for soil testing (Qadir *et al.*, 2008).

4. Collection of Soil Samples for Soil Testing

From one acre of land, soil samples should be collected from 8–10 locations. A pit should be dug in a 'V' shape up to a depth of 15 cm and soil should be collected from top to bottom on one side.

Ensure that the collected soil is free from stones, roots and stubbles. Dry it in shade, mix well, divide into four parts, discard opposite parts, and repeat until about half a kilogram of soil remains.

For selecting soils suitable for orchards, depending on the crop, a pit of 3–6 feet depth should be dug and soil samples from each foot should be collected and sent for testing.

Soil samples should not be collected from bunds, under trees, footpaths, near manure heaps, when soil is wet or from low-lying waterlogged areas.

In areas with saline soils, samples should be collected separately and sent for salinity testing.

Collected soil should be placed in a clean polythene bag and sent to soil testing laboratories along with farmer details (name, village, mandal, crops grown in last 2–3 years, and crops planned for next season) and type of test required (soil fertility/salinity/orchard suitability).

5. Management of Problematic Soils

Due to natural changes in soil, excessive use of chemical fertilizers, improper ploughing, lack of

crop rotation, salt imbalance develops in the soil which leads to changes in pH, exchangeable sodium percentage and salt content. As a result, soils become acidic, alkaline, saline or sodic. During summer, due to evaporation of soil moisture, salts come to the surface and form a crust.

To overcome this problem, the top layer of soil should be removed. For this, fields should be divided into small plots, water should be retained for 1–2 days and then drained. Repeating this process 2–3 times reduces salt content. Cultivation of green manure crops during May rains (explained below) increases soil organic carbon. In soils with low water holding capacity, if possible, application of tank silt increases clay content which improves water and nutrient holding capacity.

6. Application of Organic Manures

After receiving one or two summer showers in May, application of well-decomposed farmyard manure, poultry manure, and vermicompost followed by ploughing increases soil organic carbon (Gogoi *et al.*, 2018; Six *et al.*, 2002).

In some areas, penning of animals (sheep, goats, cattle) helps their waste to enter the field and after decomposition adds organic matter to the soil.

7. Cultivation of Green Manure Crops

In present day agriculture, use of organic manures is often limited. Therefore, as a measure to improve soil fertility, farmers should grow green manure crops and incorporate them into the soil (Gogoi *et al.*, 2018; Six *et al.*, 2002).

Crops such as sunhemp, dhaincha, pillipesara, green gram, and cowpea can be grown in summer and incorporated into the soil. This increases soil fertility, organic carbon content, improves soil physical condition, makes soil loose, reduces weeds, and prevents soil erosion.

8. Field Levelling, Bunds and Drainage Channels

Due to growth of weeds and other plants along the bunds, pests accumulate and multiply, causing damage to the crops in the next season. Therefore, regular maintenance of bunds helps in preventing pest buildup and improves field hygiene (Pimentel *et al.*, 1995).

9. Nutrient Availability in Green Manure Crops

Farmers often sow Kharif crops immediately after incorporating green manure, which is not a good practice. Crops should be sown only after

7–10 days of decomposition.

Table: Nutrients Available in Green Manure Crops

Sl	Crop	Green Manure Yield (t/acre)	Nitrogen (%)	Phosphorus (%)	Potash (%)
1	Sunhemp	6–8	3.5	0.6	1.2
2	Dhaincha	5–6	2.3	0.5	1.8
3	Pillipesara	2–3	2.4	0.3	0.5
4	Black gram/ Green gram	3–4	2.5	0.1	0.5
5	Cowpea	5–6	2	0.1	0.6

10–12 kg of green manure seed should be broadcast per acre in a ploughed field. With summer moisture or early rains, crops grow well. If irrigation is available, 1–2 light irrigations should be given. Green manure crops should be incorporated at about 50% flowering stage. Otherwise, stems become hard and decomposition is delayed.

During incorporation, applying 50 kg single super phosphate per acre helps faster decomposition and nutrient availability. Adequate moisture should be present in soil for decomposition; otherwise irrigation should be given.

10. Rodent Management

Rodent problems are increasing in many agricultural fields. Rats make burrows along field bunds and live in them. During summer management, burrows should be identified and destroyed.

11. Water Management

Water management is an important aspect in crop fields. During summer, weeds along the channels should be removed, silt should be cleared. Proper bunds and drainage channels should be maintained around fields.

Therefore, farmers should adopt the above summer management practices to keep their fields productive and achieve higher yields.

References

- Lal, R. (2004). Soil carbon sequestration to mitigate climate change. *Geoderma*, 123(1-2), 1-22.
- Behera, P., Dutta, D., Bhuyan, K.J., Barik, C., Ray, R., Sutradhar, P.P., Pathak, A.J., & Kumar, A. (2024). Conservation agriculture and crop residue management. *International Journal of Environment and Climate Change*, 14(11), 524-544.
- Six, J., Conant, R. T., Paul, E. A., & Paustian, K. (2002). Stabilization mechanisms of soil organic matter: implications for C-saturation of soils. *Plant and soil*, 241(2), 155-176.
- Qadir, M., Tubeileh, A., Akhtar, J., Larbi, A., Minhas, P. S., & Khan, M. A. (2008). Productivity enhancement of salt-affected environments through crop diversification. *Land degradation & development*, 19(4), 429-453.
- Gogoi, N., Baruah, K. K., & Meena, R. S. (2018). Grain legumes: impact on soil health and agroecosystem. In *Legumes for soil health and sustainable management* (pp. 511-539). Singapore: Springer Singapore.
- Pimentel, D., Harvey, C., Resosudarmo, P., Sinclair, K., Kurz, D., McNair, M., Crist, S., Shpritz, L., Fitton, L., Saffouri, R., & Blair, R. (1995). Environmental and economic costs of soil erosion and conservation benefits. *Science*, 267(5201), 1117-1123.