

Intercropping: Types and Its Advantages

(* Akshika Bhawariya¹ and Shankar Lal Sunda²)

¹Ph.D. Scholar, College of Agriculture, SKRAU, Bikaner-334006, Rajasthan, India

²Ph.D. Scholar, RCA, MPUAT, Udaipur-313001, Rajasthan, India

*Corresponding Author's email: akshikabhawariya0101@gmail.com

Intercropping means growing different crops simultaneously on same piece of land. Growing two or more mutually beneficial crops in close proximity is one strategy for improving soil fertility. It typically involves alternating rows or a number of rows of compatible field crops, like a pulse crop in between millet or oilseed or even forage crops. It also applies to sowing multiple crops, without definite spacing like millets, oil seeds, pulses and forage crops in a field. They usually have different maturation period so that the soil space and nutrient competition is negligible or not existent.

Intercrop - It is the growing of a crop in the vacant spaces of another widely grown crop that has a short duration of life cycle mainly grown for getting extra profits or to mitigate the losses during main crop failure.

Base crop - The base crop is one that grown as a main source of income in between the main crop vacant spaces we will plant intercrop to get extra returns.

Based on the percent of plant population maintained for each crop in intercropping system, it is divided in two types:

1. Additive series: In this system, the main crop is sown with 100 percent of its recommended population in pure stand which is known as the base crop. Another crop known as intercrop (component crop) is introduced into the base crop by adjusting or changing crop geometry. The population of intercrop is less than its recommended population in the pure stand. For example, growing of soybean/groundnut between two rows of maize crop in 1:1 row ratio.

2. Replacement series: In this system of intercropping, both the crops are called component crops. By sacrificing certain proportion of population of one component, another component is introduced. For example, growing of maize + soybean in 2:2 row ratio.

Types of Intercropping

There are at least four basic spatial arrangements used in intercropping. Most practical systems are variations of these:

Row intercropping- Growing two or more crops at the same time with at least one crop planted in rows. This can be beneficial in situations when using tall crops to reduce drought or heat stress of shorter crops, by providing shade and reducing wind speed.



Strip intercropping- Growing two or more crops together in strips wide enough to permit separate crop production using machines but close enough for the crops to interact, for example, intercropping beans and maize. Legumes have a nitrogen-fixing bacteria associated with their roots. Consequently, they compete slightly with non-legumes for nutrients, and in some cases even supply nitrogen to adjacent plants.

Relay intercropping- Planting a second crop into a standing crop at a time when the standing crop is at its reproductive stage but before harvesting (e.g pulse in the transplanted rice). The lettuce will use the space that is not yet occupied by the tomatoes and is harvested about the time the tomatoes are branching out to cover the width of the bed.

Mixed intercropping- Growing two or more crops together in no distinct row arrangement. Some crops may also be sown as a border crop or as a trap crop at the hedges of the main crop to reduce pests. The pest, arriving in the field from the edges, encounter the trap crop (which is strongly preferred than the main crop) and stops. The trap crop may be sprayed with natural insecticide to control the pest, before it moves to the main crop.

A crop mixture with different growth forms or development may make cultivation and use of mulches more difficult and less effective. Therefore, planting crop in alternate rows greatly simplifies management.

Patch Intercropping- In this method of intercropping, intercrops are grown in patches in the vacant spaces in the same piece of land.

Trap Crops- Traps crops like marigold and mustard etc. are intercropped in between the main crop to trap various insect pests.

Benefits of Intercropping

1. Increasing diversity.
2. Intercropping gives additional yield income/unit area than sole cropping.
3. Improved fertility and nutrient use.
4. Establishing a strong green manure.
5. Reduction in soil runoff and controls weeds.
6. Insect control and disease reduction.
7. Reduce weather risk.
8. Ease of harvest.
9. It acts as an insurance against failure of crops in abnormal year.
10. Inter-crops maintain the soil fertility as the nutrient uptake is made from both layers of soil.
11. Intercrops provide shade and support to the other crop.
12. Inter cropping system utilizes resources efficiently and their productivity is increased.
13. Intercropping with cash crops is higher profitable.
14. It helps to avoid inter-crop competition and thus a higher number of crop plants are grown per unit area.

References

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