

Technical Bulletin #18:

Knowing Your Crop: Lettuce

Introduction

This bulletin is intended to help USAID-HARVEST clients to follow the basic practices recommended by our technical team in order to reduce the risk and increase the yields in lettuce production.

Lettuce is one of the most common crops in commercial horticulture. Generally it is grown in temperate zones, and in Cambodia we have very good varieties adapted to local climate conditions. The most common type of lettuce grown here is called “loose head.” This variety can be grown year round and is very popular with farmers because of the short maturation period of 25-30 days depending on the variety.



Land preparation

Between 30 to 45 days before transplanting, plow the land 2-3 times thoroughly into loose tilt with a depth from 25 to 30 cm. Next, create raised beds with a height of 20 to 30 cm; the distance between beds should be 1.50 m, and the tops of the beds should be 1.00 m wide. Once the beds are prepared, install the drip irrigation system and wet the beds in order to make weeds germinate and thus be able to control them before transplanting.

Seedling Production

Although lettuce can be directly seeded, USAID-HARVEST recommends the use of seedlings to increase seed germination and harvest rates. Lettuce seeds generally have a dormancy period, therefore it is better to use seeds that are about one year old. Also, sow about 10% more seeds than your desired outcome to compensate for plants lost during the seedling stage.

Seeds should be placed 0.2 cm deep in the middle of the seed tray cell, and the recommended cell size of seed trays is 2.5 x 2.5 x 3.8 cm. After sowing the seeds, cover the holes with a fine material (rice hull ash + sandy soil) and water the seed tray as uniform as possible until drops start coming out of the bottom of the cells. Keep the seed trays on the germination chamber for 2 days, after that take the trays to the seed tray stands where after 18 to 21 days they should be ready for transplant (or when the seedlings have 4-6 leaves).



Transplant

Transplant day is one of the most critical days on lettuce life cycle. To be prepared for transplanting, a farmer should have the following:

- Beds should be completely wet (irrigate at least 2 to 3 hours on the afternoon before transplanting).
- Mark the holes at well-spaced intervals. Depending on the variety of plant, plant the lettuce at 15 x 15 cm up to 25 x 25 cm intervals. This means we may have between four to six lines per bed. The holes should be 1 to 1.5 cm deeper than the seedlings plugs (4.8 to 5.3 cm). Use a distance marker to plan your transplant holes.
- Use a starter solution. Prepare 1.5 Kg of DAP or 15-15-15 and mix that with 200 liters of water, then apply 100 ml of that solution to each hole.
- Select seedlings according to size and transplant them together according to selection. Planting the lettuce according to their size will avoid plant competition and increase plot uniformity.



- Do not take the seed trays to the transplanting plot; instead use a plastic basket or a carton box to transport them to the field.
- After transplanting, water the crop for at least one hour to uniform the humidity of the bulbs in the plot.



Fertigation

Commercial lettuce should be watered every day. The first three days after transplanting water the crop three hours per day. After that leave the plant without water for as many days as the plants can resist and check them every day at 2:00 pm. If you see the plants are too wilted, return to normal watering. After this period (the root induction period), irrigate every day. The total time spent watering will depend on the time of year (rainy or dry season), stage of plant, and soil conditions. A USAID-HARVEST technician will advise you on how to define the irrigation time. Fertilization should be done through the drip system at least once per week, and a USAID-HARVEST technician will provide you with a fertilization program according with your needs. In general terms, these are the nutrient needs for one hectare of lettuce:

Nutrients:			Kg./Ha.		
N	P ₂ O ₅	K ₂ O	Ca	Mg	B
203	57	370	176	51	0.52

Pests and disease control

Lettuce is susceptible to a number of pests such as slugs, aphids, plant bugs, white groves, and leaf hoppers. There are two major diseases, downy mildew and grey mold, that are active and very destructive to lettuce in cool and damp weather conditions.

USAID-HARVEST suggests an integrated pest management (IPM) approach to controlling pests and diseases. Chemicals alone are not enough and in fact, often times the best solution to problems don't involve any pesticides or herbicides. In case of a disease or pest problem, please contact your USAID-HARVEST technician and ask him or her for advice on how to handle the problem. You can also ask your technician to provide you with the following technical bulletins: "[Pest, Diseases and Weed Management](#)" and "[Recommended Products for Input Suppliers](#)".

Harvesting

Lettuce should be harvested when the leaves are large and the flavor and texture is maximized. Harvesting the plant late will result in tougher leaves that develop a more bitter taste.

Nutritional Importance

All lettuce is a low-calorie food, but not all types of lettuce have the same nutritional value. As a general rule, the darker the lettuce, the more nutrients it provides. "Loose head" or loose leaf lettuce has higher nutritional values than "crisp head" types. A serving of loose leaf lettuce (100g) for an

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adult and a smaller serving (50g) for a child provide two to three times the daily amount of Vitamin A that each needs. This is important because in Cambodia, Vitamin A deficiency is a major cause of night blindness in children. Loose leaf lettuce is also a good source of Vitamin K, which helps to clot blood, and Vitamin C, which builds strong bones and teeth and helps to fight infections.

Reference:

MAFF, 2007: Family home garden

<http://www.vegetable-garden-guide.com/how-to-grow-lettuce.html>