6 Drip irrigation. A drip irrigation system is one of the most efficient ways to water the plants as it delivers water directly to the soil near the root system where the plants need it the most. It is very useful in watering greenhouse plants but it can be used also for pots or even new plants in the open ground. In this method, a tube carries water around the plants and above each plant is a small “dripper.” Water would gently drip on to the soil when the tap is on.

This is also helpful in a way because the farmer do not have to water the plants individually everyday. The farmer is assured that the plants are receiving water even without their presence in a certain period of time.

IMPROVISED DRIP IRRIGATION

A CHARM2 Scale Up good practice

Usage of 1.5 water bottle and bamboo tube as improvised dripping irrigation method in Abra (shared by Ms. Febehlyn Blace, EMS-Abra).

The Project-assisted agroforestry peoples associations (POs) in Abra are using an improvised dripping irrigation method by ‘dextrosing’ their agroforestry plants to provide the needed water while ensuring the continuous moisture in the soil. This is also a means of lessening the physical activity of watering the plants regularly, thus, saving the POs more time to tend to their other household or farm activities.

The POs use either 1.5 liter-plastic bottle or bamboo tube (tubong) as watering materials. A small hole is made at the bottom of the watering materials just enough for the water to drip. A bigger hole is made on the top of the materials to where the water is being poured. The bottle or tube is tied in opposite poles (e.g. branches) in a way that it would be lying just above the plant while allowing little water to drip from it. Poured water in the watering materials lasts for about 2-3 days.

Ms. Blace shared that the practice is already being done by the Abra communities even before the implementation of agroforestry projects to sustain their regular crops. Seeing that it is effective, the POs have adopted it as one strategy in irrigating their plants especially when water is limited during the dry season.

Guide in watering plants under dry condition

(Deb Brown, 2012)

- Consistent watering helps plants deal with the stress of high temperature when there is no rain.
- It is most efficient to water the plants early in the day when it is cooler.
- Repeated wilting and re-hydrating is detrimental to most plants. Try to maintain a relatively steady supply of moisture to the soil. This is not just to keep plants looking the best but also to promote continued healthy growth and help plants cope with the stress of summer diseases and insects.
- Adding calcium to the soil usually does not solve the problem. Instead, focus on maintaining constant moisture levels (e.g. mulching).
- Water deeply, but do not wait until the soil is already bone dry to water again.
- Avoid getting the plants wet late in the day unless it is the only possible time that you can water them. If they do not dry before sundown, they would stay wet all night and become more prone to fungal and bacterial diseases.

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*This technoguide has undergone technical review by Ms. Eleanor W. Camut, Agriculturist II (High Value Crops Development Program) and Mr. Landes B. Teofilo, Senior Science Research Specialist (Research Division) of the Department of Agriculture-RFO-CAR.

Scaling-Up of the Second Cordillera Highland Agricultural Resource Management Project (CHARMP2-Scale Up)

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Most growers would sigh a breath of relief when they see that the seedlings have already emerged from the soil. Seedlings are young plants that have grown from seeds. As the seedlings continue to grow above the soil, they may be challenged by various factors such as weather and availability of nutrients that would either help them to develop better or not.

Proper caring of seedlings and plants needs utmost attention especially when the weather is not favorable such as dry season. Dry season or drought has some obvious effects to plants such as brown lawns, crispy leaves, smaller flowers and fewer fruits. Other effects such as weakening of plants, making them more susceptible to insect and disease attack, happen with prolonged drought.

Heat and drought has been and is being experienced in several areas around the country in certain times of the year. This encourages many farmers to already shift into less-thirsty or drought tolerant crops to help them ensure that their farms will stay productive and profitable. Although there is nothing much we can do to change the weather condition, there are some things we can do to address and help our plants survive the challenge.

As we all know, water plays an important role in farming or agriculture in general. Without adequate water, the crop yields might be low, plants may wither and dry up, and in worst cases, the entire crop can die. More so, plants need water throughout their life cycle. Thus, lack of rainfall especially in drought conditions poses a serious threat to a farmer’s livelihood.

This technoguide then presents various methods or activities that can be done to combat or reduce the ill effects of the dry season. These methods and activities are helpful in maintaining the moisture and required temperature of plants so as to prevent

### METHODS/ACTIVITIES DONE IN TAKING CARE OF PLANTS DURING THE DRY SEASON:

1. **Mulching.** It is by far the best way to preserve the water in the soil as it reduces evaporation. It is very critical in keeping whatever water is present in the soil. Mulching is also a very effective way of feeding your soil, regulating growing temperatures, and preventing the growth of weeds which steal water needed by the plants.
   
   Mulching is done by spreading the mulch materials into 3-6 inches deep on top of the exposed plants in between the plants. For flowers and vegetables, apply 1-2 inches of mulch materials.
   
   Mulch serves as a protective layer material which includes almost everything such as straw, grass clippings, corn cobs, river stones, pea gravel, chipped bricks, bark chips, leaves, peat moss, seaweed, wood ashes, and sawdust.

2. **Application of organic matters.** Applying fully decomposed organic matters improves the quality of the soil. These fully compost kitchen waste, garden waste and animal manure (except human, cat and dog manure) help the soil in storing and processing an amazing amount of water.
   
   Poor quality and depleted soil simply cannot hold much water, thus, it leaves the plants dry and ultimately, dead.

3. **Avoid over-watering.** Over-watering the plants is a very common cause of sickly plants. Let the soil begin to dry a bit in between waterings. Watering plants is best done in the early morning or evening, while it is cool. Doing such would allow the water to run down into the soil and reach the roots of the plant without too much excess water that is lost due to evaporation.

4. **Water deeply and infrequently, rather than little and often.** A lack of water sends young roots searching deep down into the soil, where they will find reserves of moisture and be more self-sufficient. Those plants watered often but not deeply will only send out shallow and surface roots that suffer in drought times.

   In other words, deep, infrequent irrigation produces greater number of roots, longer roots, and larger root surface area that help the plants during periods of higher temperature.

5. **Control weeds.** Weeds compete with the plants for resources such as water and sunlight as well as other nutrients in the soil that the plants need in order to survive.