

PURPOSE

To give the grower a clear understanding of the key areas of ground work that need to be completed prior to constructing the tunnels.

KEY POINTS

- Putting time and effort into getting everything right with the drainage water is essential, and must be done before tunnels are constructed.
- Some earthworks are required to make sure the ground is generally even with at least some slope to enable runoff and storm water to drain away.
- During the process of earthworks, a shallow swale (scallop, drain) should be formed along the line where the posts for the tunnels are to be sited.
- Drainage may be required in the event of wet areas or areas that storm water flows into from adjacent areas.
- Trenches for irrigation pipes, cable and communication wire needs to be planned in advance and implemented prior to the laying of weedmat and screw anchors.

All the important tasks above are difficult or impossible once the commencement of tunnel erection begins. The tasks do tend to take longer than expected so should be planned and implemented weeks and months ahead of the tunnels arriving and commencement of construction.

The tunnels do tend to follow the natural contour of the ground so can be erected on sloping or rolling ground. However, the surface needs to be generally 'smooth' for ease of access for vehicles, no tripping hazards for workers and for the pots to sit level. This can be achieved by different earth working machinery.

As rain falls on the tunnels it all naturally flows down into the valleys between the tunnels and directly onto the ground. During heavy rain this can lead to significant volume of water, thus the important requirement for the swales and gradual slope is to channel this water away.

Without the swales, the storm water can run sideways across the tunnels creating a boggy mess leading to difficult access and instability for the plants in the pots. (rain management around tunnels, BerryCo on youtube.com)
<https://www.youtube.com/watch?v=bbhF-C6eL3w&feature=youtu.be>



GROUND PREPARATION

GROUND LEVELLING

To make the swales along the line of posts, small earth moving equipment like a Bobcat or digger is required. This displaced earth will then need to be levelled. For 'general smoothing off' surface cultivation equipment such as a power Tiller/Harrow and and/or Cambridge roller can be utilised.

RIDGING

Growers who choose to grow in the soil often utilise raised ridges which need to be formed during ground preparation. Their function is to help with drainage and prevent the plants from standing in puddles that will form over time. Plants subject to wet feet are high risk for phytophthora root disease which is often fatal for the plants. The dimensions of the ridge is usually 0.7m wide and 10-15cm high. This is covered with either 1m wide weedmat or compost which is regularly refreshed. The layout of the rows depends on whether the growing is in tunnels or outside. Growers should consult as to the best layout for their circumstances. More information can be found in 1.4.1 Infrastructure.

SLOPE

Even on ground that looks essentially 'Flat' it is preferable that the earthworks create a small slope utilising their laser equipment. At least 1:100 flowing naturally from one corner to the opposite corner is recommended to allow for runoff to be properly managed.

GRASS SOWING

It is advisable to sow grass seed after such cultivation, being mindful of which areas will be covered by the weedmat. Some tunnel growers utilise drought resistant grass seed for better growth once the tunnels are erected, (e.g. Fescue).

Regardless of seed type, establishment and mowing well ahead of erection of tunnels makes construction easier. Also, importantly, this grass growth within the tunnels creates a dust free base and helps normalise humidity level within the growing environment.

Ideally, the mower to be utilised once the tunnel is in full production fits neatly between the weedmat that is placed under the pots.

ACCESS

Given the tunnels are generally a new development and there will be a lot of traffic between the tunnels and the packhouse/multifunctional shed thought should be given to creating a robust track.

DRAINAGE

Any work that may be required is specific to each site. Some sites will require no remediation. But sites that are sloping or naturally have 'heavy soils' or springs may need some field drains to avoid accumulation of surface water under the tunnels once established.

Some consideration to drainage will be required at the lowest end of sloping tunnels. From the swales and the general runoff from the slope, significant volumes of water will be running off during rain events.

IRRIGATION PIPES AND COMMUNICATION CABLE

A professional irrigation design is essential to ensure the correct flows, pump specification and pipe diameter to supply the drippers. Flowing from this is where the feeder pipe and submains need to be situated.

Also, communication cables and data cables for the irrigation solenoids and any sensors needed (Air Temperature, Humidity, Solar readings, Root Zone Monitoring, 24V DC power supply) should be laid in the same trenches while the opportunity presents.

EXTRA WATER PIPES IN TRENCH

It is also possible that water for additional purposes may be needed. This could include frost protection for the winter that could also be utilised for some irrigation in the summer for the grass cover, humidification and the occasional freshening up of leaves on the blueberry plants.

Also in particularly hot areas where temperatures in the tunnels may exceed 35°C, one row of misters along the apex of the tunnels can be used. To future proof these possibilities it is worth considering laying extra pipe in the trench for these eventualities.

It is also preferable having a standard water tap (or taps) in the tunnel area so potentially this extra pipe could be utilised for this in the short term.

