



## Reducing Time to Harvest – with Microbial Help

**MetaGrow™** integrated biology and fertility programs often bring a crop to full maturity a few days to a couple weeks earlier than grower standard programs.

The contributing reasons for this are as follows.

- Microbes produce plant growth factors that the plant uses to shift to various growth stages. The more efficiently the plant makes these major shifts in physiology, the more efficiently the plant grows its crop to maturity. The improved hormone balance in the plant results in a more efficient change in plant physiology and nutrient functions (which nutrients are taken up and where they are translocated) as the plant shifts its various plant growth stages from vegetative to reproductive and back again (several times depending on the crop).
- Microbes produce metabolites which reduce abiotic plant stressors (heat, salt, drought, etc.). For example, with microbial support you will see a significant reduction in the severity and duration of day wilt conditions. The hours a plant spends in day wilt are lost photosynthetic hours and therefore lost hours to grow and mature the crop.
- Microbes increase the nutrient status of the plant. By helping plants procure specific nutrients (Plant Directed, Microbe Delivered) plants experience nutrient shortages or substitutions less frequently or severely. The improved nutrient status improves the photosynthetic efficiency, reduces the energy expended and provides for more complete protein synthesis. These efficiencies enable the plant to bring its crop to maturity faster.
- Microbes produce metabolites which prevent premature senescence. By not losing photosynthetic leaves and not experiencing prematurely slowed metabolism, a crop can mature earlier.
- Microbes feed nitrogen to the plant in amino acid form. This form is much more water and energy efficient for the plant than nitrate form. These energy savings can be used by the plant to grow and mature the crop earlier.
- A biological program results in a reduced need for pesticides and fungicides. These materials stun the plant and can substantially slow down or shut down photosynthesis and other physiological processes for 24 to 72 hours. To the extent that an integrated biological program eliminates some of these sprays, those lost days in growing and maturing the crop are recouped.