



Special Bulletin—Frost

What to think of an early frost

Temperatures have dipped below 0°C recently and threats of low night-time temperatures continue. Fall frosts were experienced at the same time last year, however the 2012 crop is much earlier. The recent frosts are approximately 10-12 days ahead of our average 0°C frost depending on area. With these early frosts comes the question, how are the sunflowers going to be affected? And, how does this affect desiccation timing?

Sunflowers experiencing a frost event anytime before physiological maturity (R-9) can cause damage. The plants are most sensitive to frost during the bud and flowering. After pollination and petal drop, sunflower can withstand temperatures as low as -4°C with only minor damage.

A killing frost in sunflowers is considered to be -4°C to -5°C for 6 or more hours. A killing frost prior to the R-8 stage can cause minor damage which includes reduced yield, oil content and seed quality/test weight. This may be a concern for late planted fields, however the sunflower crop is at, or past, the R-8 stage and minimal damage is expected. There have been questions wondering if the dry conditions would reduce the impact of frost in the later growth stages. This is unlikely as the frost is killing the healthy green material and the stalk which is supporting continued seed fill. Yield loss and reduction of test weight is still possible.

The implication of cold weather on desiccation is two-fold. Firstly—although it was a frost, we have not experienced a killing frost yet. The current cold nights have not been cold enough to substitute for a desiccation. However, the second implication is that although desiccation should still be considered, unless a killing frost is expected in the near future, plant metabolism has slowed down. The plants will not metabolize the harvest aid quickly and dry-down will take longer.

To optimize the benefits of applying a desiccant, it is necessary to look at the weather forecast for the next week.

- **How cold will it get?** If a frost below -4°C is expected, a desiccant might not be required
- **How warm will it get?** Desiccants perform much better if applied in temperatures >20 °C

Applications to healthy green plants will provide optimum results. Due to the lack of dews lately, it is extremely important to maintain water volumes.