

Clearfield® Plus: Your alternative choice for weed control and crop rotation



Together we farm
for the future®

By Corné van der Westhuizen, agronomist, North West, Pannar Seed (Pty) Ltd

Clearfield® Plus technology offers producers an alternative solution to control weeds while benefiting from economic, time and yield gains. The Clearfield® Production System combines high-yielding sunflower hybrids with broad-spectrum herbicides with a different mode of action (MOA) that delivers efficient weed control.

Clearfield® Plus sunflowers are classified as non-transgenic. The inherent herbicide resistance is a natural mutation. The original Clearfield® trait in sunflowers is based on a natural acetohydroxy acid synthase (AHAS) mutation discovered in 1996 in a wild sunflower growing in a soya bean field in the United States.

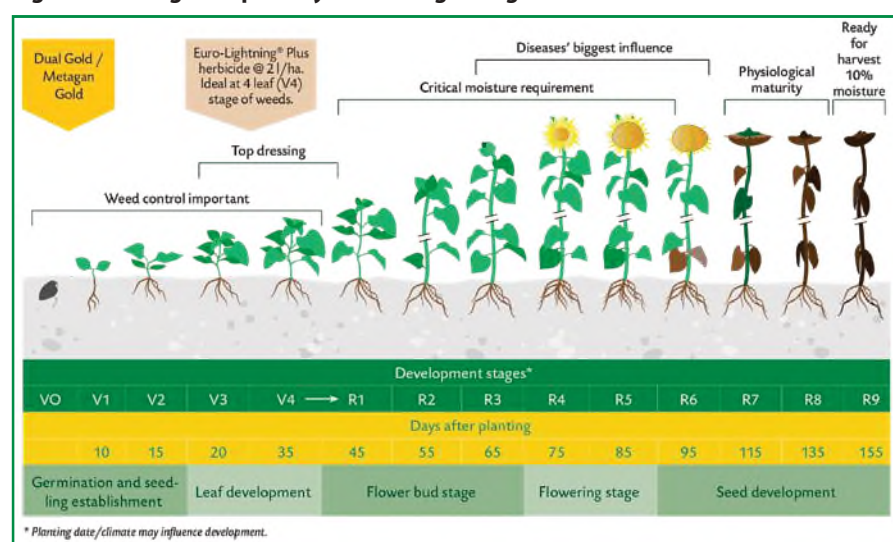
The Clearfield® Plus Production System for sunflower delivers important agronomic benefits, which include:

- Crop rotation.
- Superior breeding efficiency.
- Greater herbicide tolerance.
- Improved weed control.
- Potential for higher grain yield.

Invest in leading genetics

The Pannar® brand sunflower package with the Clearfield® Plus trait provides stable performance with good risk management. The Euro-Lightning® Plus herbicide provides effective post-emergence control of a variety of broadleaf weeds and grasses and delivers consistent post-emergence efficacy against broadleaf weeds, due to better retention and adhesion of active matters (Figure 1).

Figure 1: Timing and quantity of Euro-Lightning® Plus herbicide use.



Pannar brand hybrids with the Clearfield® Plus trait are only registered for the use of Euro-Lightning® Plus herbicide (Reg. No. L10316). Pannar does not support the use of any other post-emergent herbicide on our Pannar brand hybrids with the Clearfield® Plus trait that have not been tested or proven in official qualification trials.

The Clearfield® Plus programme

- For successful control, apply at the two- to six-leaf stage of weeds. The timing of Euro-Lightning® Plus should be completed by 32 days after planting.
- Prior to the use of Euro-Lightning® Plus, spray tanks, booms and nozzles must be thoroughly cleaned and decontaminated of all previous spray residues.
- Poor water quality: Only use a flowable (50%) high-quality ammonium sulphate

at a 2% dilution to ameliorate the water before adding Euro-Lightning® Plus. Do not use any additional wetters, spreaders or other adjuvants. Do not mix with organophosphate or carbamate insecticides.

- Soil application: 2 l Euro-Lightning® Plus at 150 to 250 l of water per hectare.

Always follow grain marketing, stewardship practices and herbicide label directions. Clearfield® Plus sunflower hybrids are tolerant to Euro-Lightning® Plus herbicide; this is indicated by the letters 'CLP' in the seed product code. Other crops, including conventional sunflower hybrids that do not contain the Clearfield® Plus trait or have confirmed imazapyr tolerance, will be severely damaged if unregistered imazapyr-based herbicides are applied.

Table: Euro-Lightning® Plus herbicide recommended waiting periods at 2 l per hectare.

Subsequent crops	Waiting period
Pannar brand sunflowers with the Clearfield® Plus trait	None
Wheat	Four months
Maize (all maize-producing areas, including irrigation), dry beans and soya beans	Nine months
All other crops	20 months

Valid only if the correct amount of Euro-Lightning® Plus herbicide is applied and a minimum of 350 mm of rain falls.

The unique Clearfield symbol, Clearfield® Plus and Euro-Lightning® Plus are registered trademarks of BASF. For more information, contact Corné van der Westhuizen at 082 570 8240 or corne.vanderwesthuizen@pannar.co.za.