

Striga Control Through Herbicide Resistant Maize

The Problem

- Striga infests over 20 million ha crop land in Sub-Saharan Africa.
- Causes >\$1 billion in lost maize yield annually and affects the livelihood of > 100 million people.
- Very prolific - one Striga plant produces 50,000-200,000 seeds.
- Typically 20 plants/m² infestation, 10-40 billion seeds/ha/yr added to soil.

The Solution

- Reduce seed bank and crop losses by:
- Developing appropriate agronomic practices
- Striga resistant maize varieties
- Herbicide resistant maize varieties



Herbicide Resistant Maize

■ Imidazolinone-Resistance (IR) is a natural non-transgenic maize mutation identified and isolated on tissue culture.

■ Herbicide resistant maize seed is coated with low dose of systemic herbicide (imazapyr) at 30g per hectare.

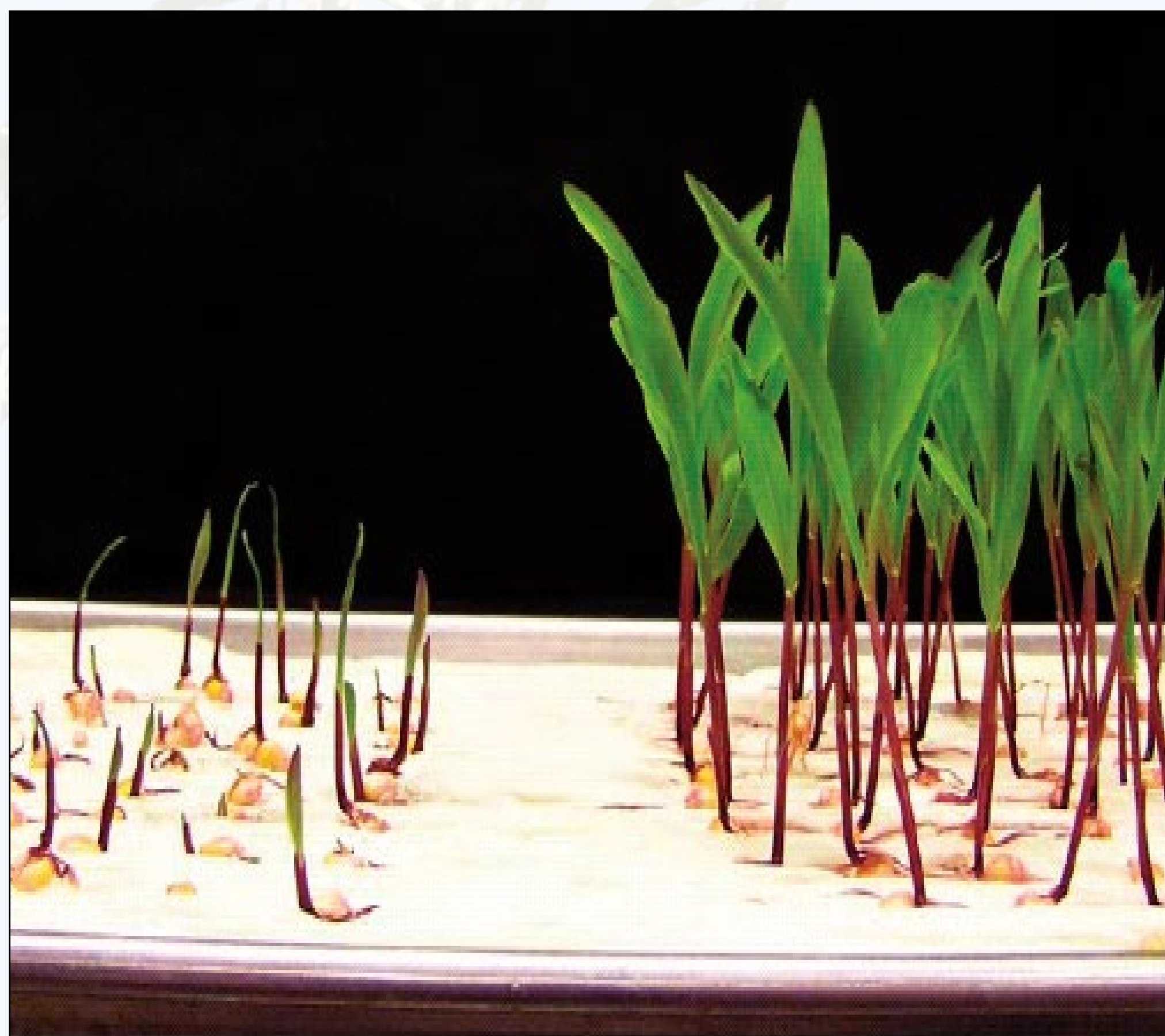
■ Herbicide kills Striga as it attaches to the root before it can damage the host plant.

■ Striga seed bank is reduced due to suicidal germination of Striga and direct action of herbicide on seeds.

Herbicide Resistant Maize - Achievements

■ 12 IR lines released (CML512-CML523).

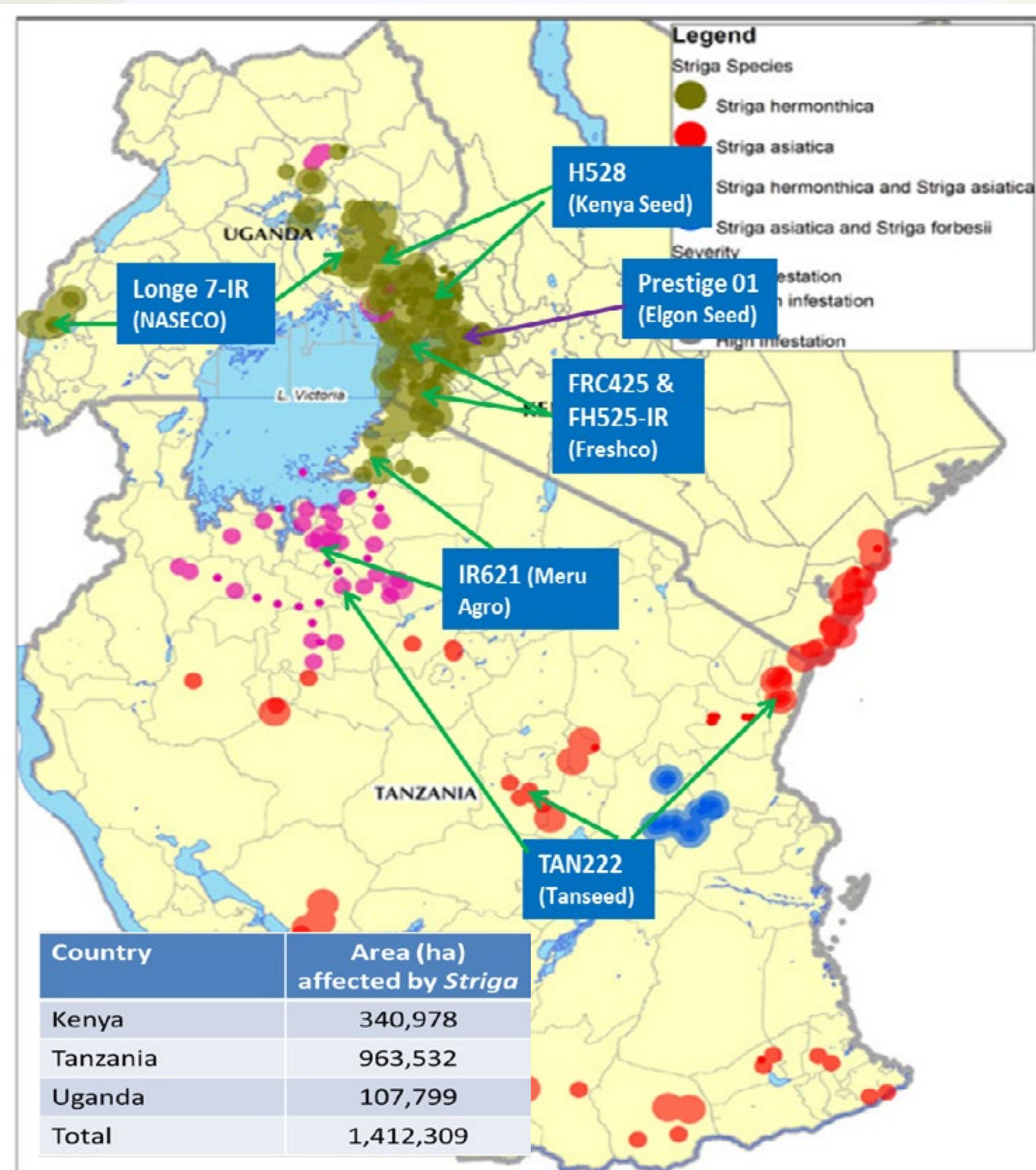
■ Seven hybrids released in Kenya and Tanzania.



Maize seedlings with 2 ppm imazapyr at 6 days after planting. Seedlings on left are non IR-maize. Seedlings on right are IR-maize.



A farmer appreciates an experimental IR maize hybrid (left) in a trial at his farm, and a NARO scientist looks at a local check variety susceptible to Striga (right) in the same trial.



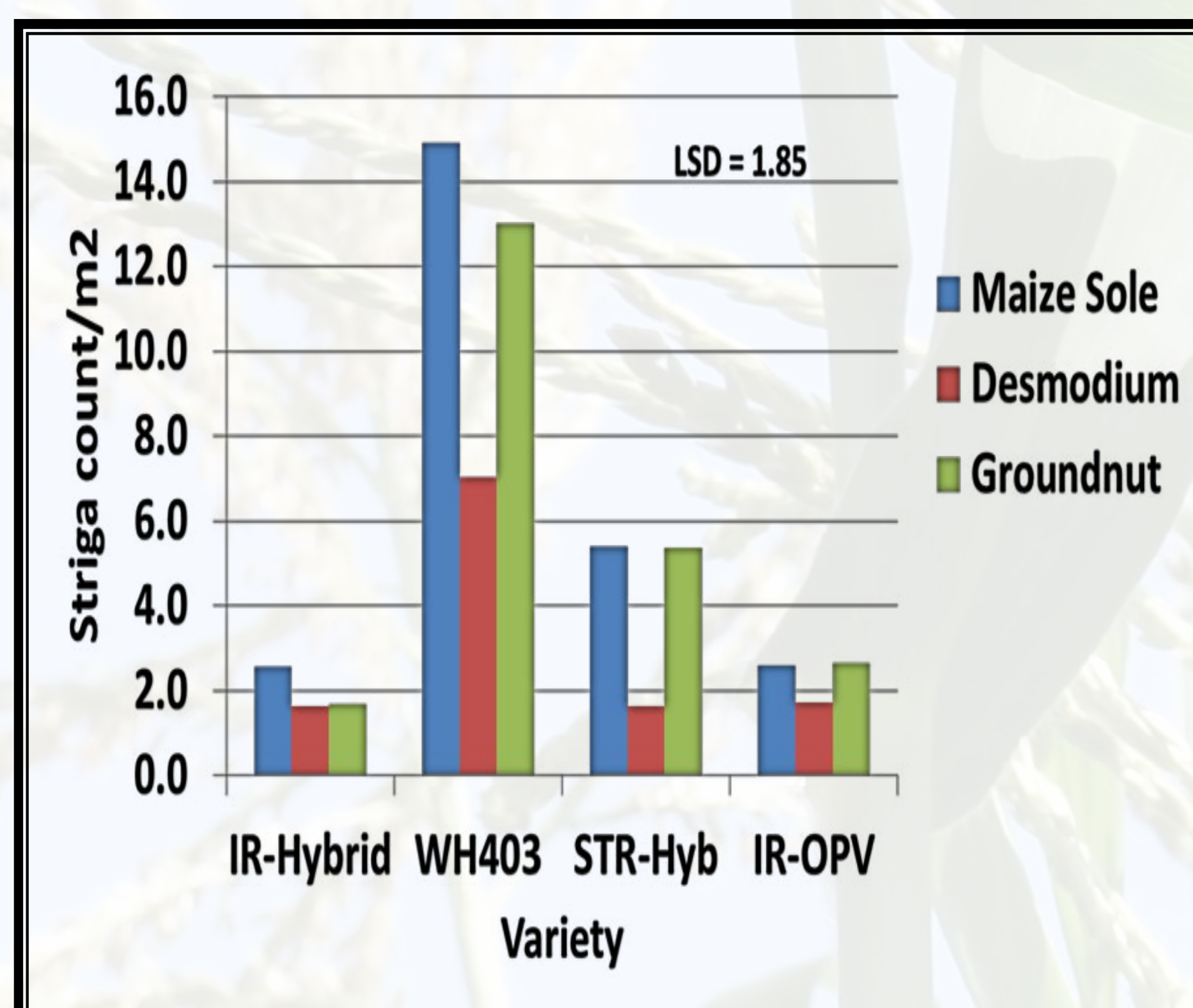
Integrated Striga Management

■ Deploy and disseminate existing effective Striga control technologies in Kenya while adapting them to different agro-ecologies, farmer practices and climate change scenarios.

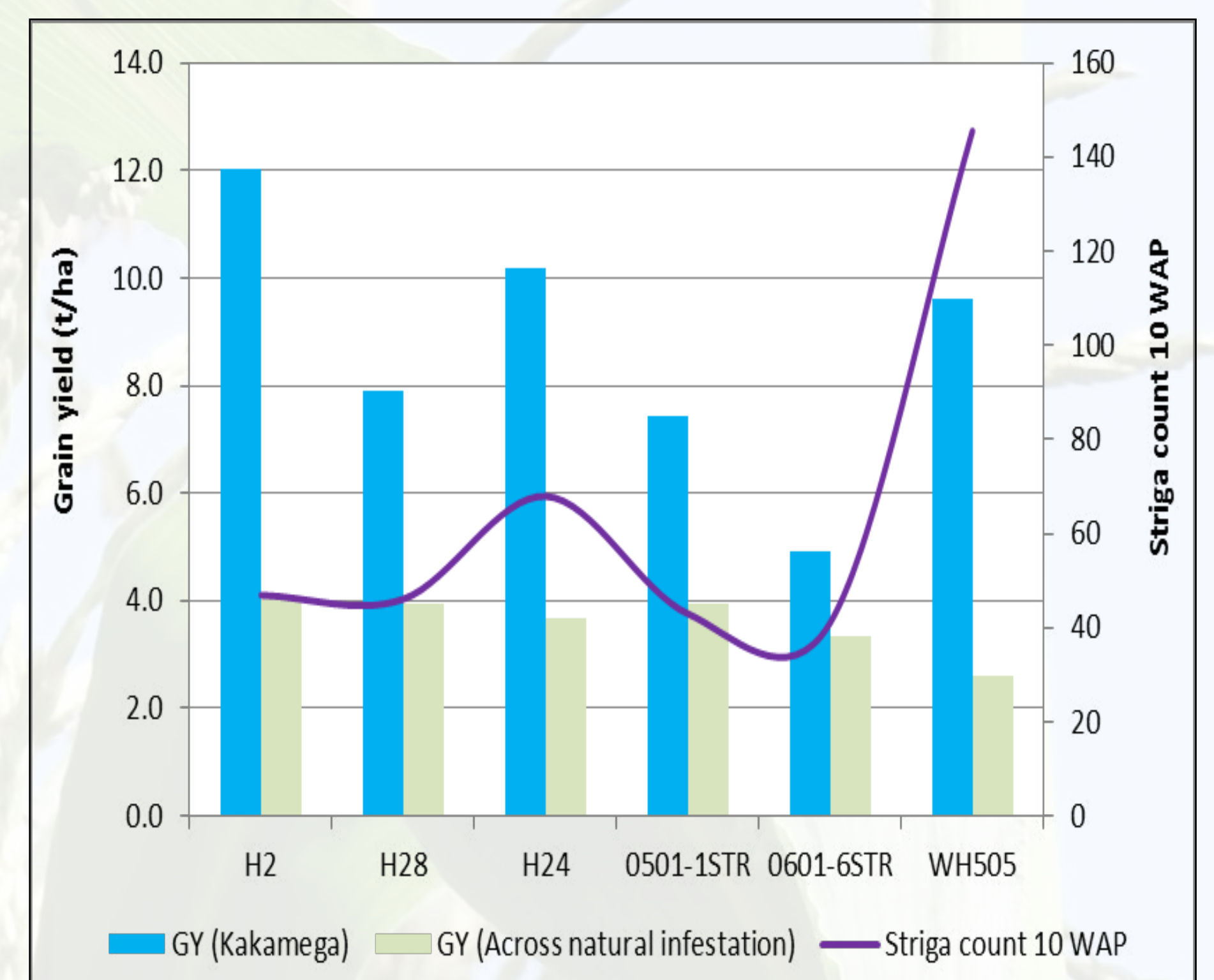
■ Demonstrated different control strategies.

■ IR-maize, commercial maize, Striga-resistant maize (IITA) as sole crop or as intercrop with Desmodium or Groundnut.

Striga count per m² under natural Striga infestation



Grain yield of herbicide resistant, Striga resistant and commercial hybrid



Acknowledgements

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