Investigating potential chemical control measures for bean seed fly

Bean seed fly meeting 2021

Max Newbert – Insecticides Technical Manager
Max.Newbert@Syngenta.com

EAMU registration

EAMU – MAPP number 11752

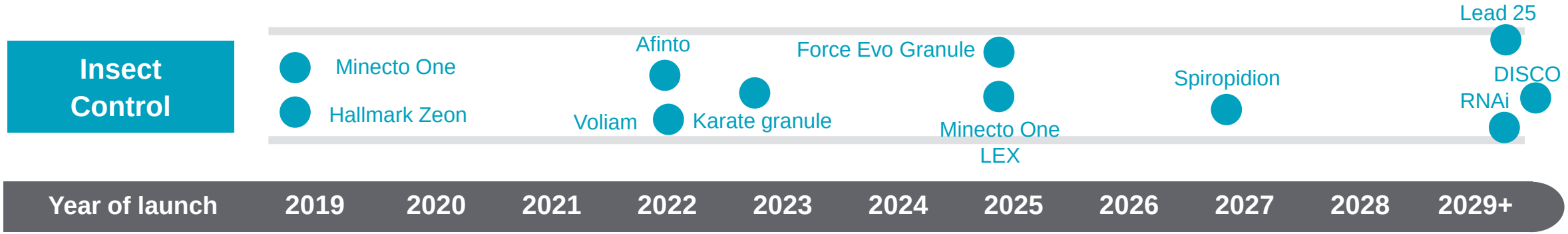
- The Force ST EAMU is based on the sugarbeet on-label approved use
  - -The sugarbeet use of the 13 gAI/ha
  - -Based on a pelleted seed crop

- Hort EAMU uses are far exceeding the maximum grams of AI per hectare
  - - The dose rate per unit of seeds is required to be reduced for the EAMU approval
  - - For example onions dosage is 25ml / 100,000 seeds = 27.5 gAI/ha
  - - All minor crops are film coated

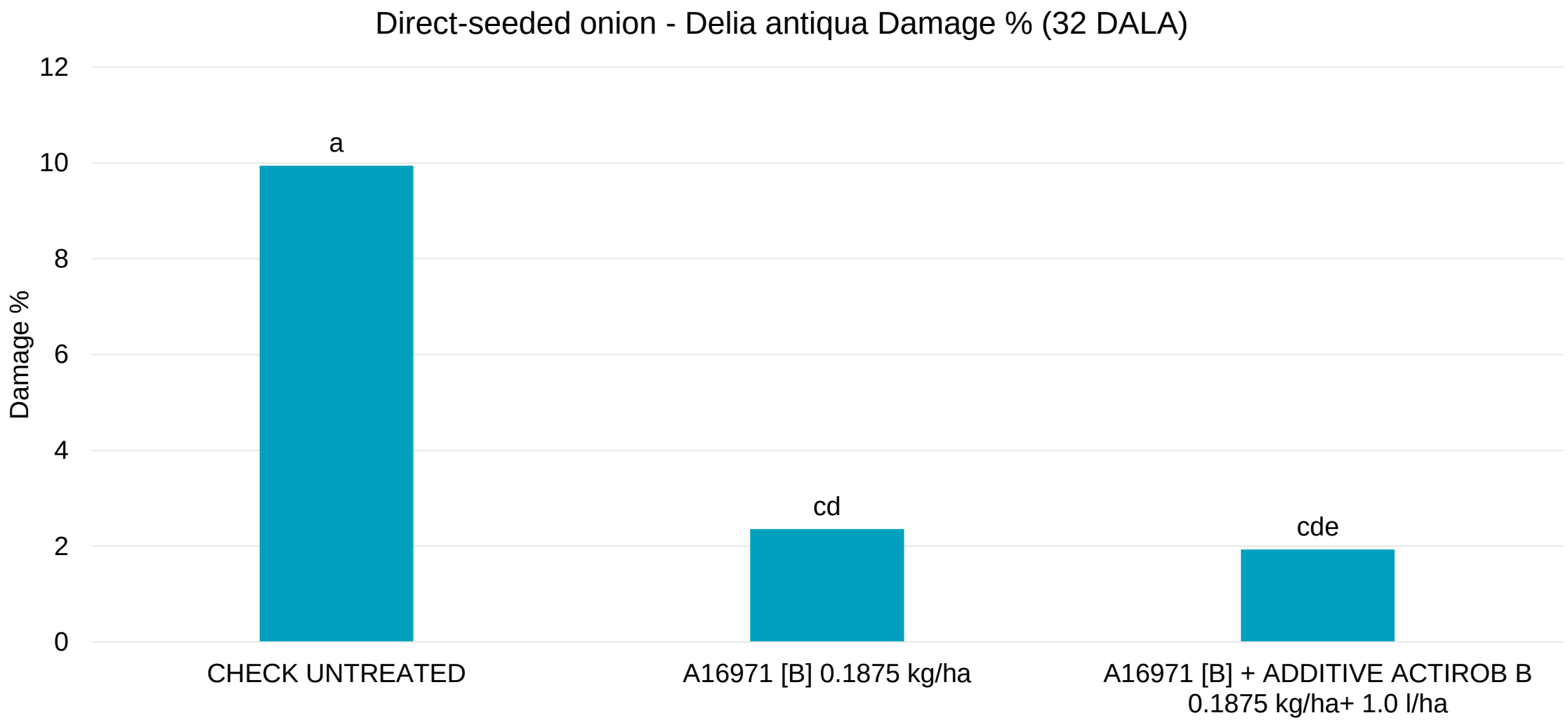
- **Withdrawal period for product:**
  - - 31 December 2020 for sale and distribution
  - - 31 December 2021 for the disposal, storage and use of existing stocks

- **Treated seeds:**
  - -Seed treated with Force ST MAPP 11752 may be marketed and used beyond 31 Dec 2021 in the UK

Syngenta insecticide pipeline



Cyantraniliprole effect on fly pests



Karate® 0.4GR Force® Evo

syngenta

™

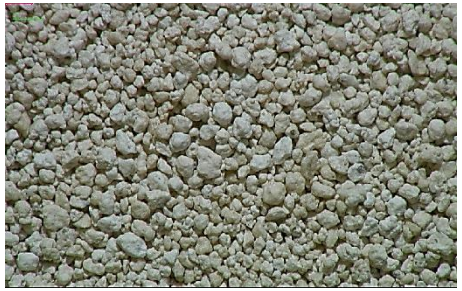
Karate® 0.4GR

CROPS :	Pest	Rate	Nb of APP	PHI	Buffer zone
Carrot, Celeriac, other root veges of same category	Wireworms, Diabrotica virgifera	15 kg/ha	1	Not applied	20 m
Cucumber, courgette					
Cauliflower, Broccoli, Cabbages, Brussel sprouts					
Lettuce, lamb lettuce, chicory					
Corn					
Sweet corn					
Melon, watermelon					
Pepper					
Soja					
Sorghum					
Tomato, Aubergine					
Sunflower					
Potato					none
Tobacco				-	5 m

Proposed Product label

Karate® 0.4GR

- Composition : **0.4% Lambda-cyhalothrin**
  - Family : Pyrethroid
  - Mode of action : ***contact, ingestion & vapor diffusion***
- Formulation : microgranules (density : 0.9)



- Crops : **Maize, potato**, then veges
- Dose rate : **15 kg** (*60 g/ha of Lambda-cyhalothrin*)
- Open field use only.
- Label : soil treatment (in furrow) against
  - **Wireworms,Diabrotica**

- Nb max of applications : 1
- Buffer zone : 20 metres for all crops no buffer zone for potato.

Force® Evo

Crops		Rate	Nb of app	PHI	Buffer zone
Asparagus	*Chaetocnema tibialis, Agriotes sp., Agrotis sp., Ceuthorhynchus pleurostigma, Blaniulus guttulatus, Centipeda spec., Chamaepsila rosae, Hylemya sp., Melolontha melolontha, Tipula spp*	16 - 20 kg/ha	1	-	TBC
Bean, french bean, pea					
Cabbage, cauliflower					
Carrot				-	
Celery, fennel				-	
Lettuce and other salads				-	
Melon, watermelon, cucumber				-	
Tomato, aubergine, pepper				-	
Turnip, swede (rutabaga)				-	
Corn, sorghum	*Agriotes sp., Hylemia sp., Scutigerella immaculata, Tipula sp., Agrotis sp., Diabrotica sp.*	12 – 16 kg	1	-	
Corn	*Diabrotica spp.*	20 kg	In case of high risk: high presence of Diabrotica, early seeding, mono succeeding crop	-	
Flowers and ornamentals	*Agriotes spp., Agrotis spp., Blaniulus guttulatus, Centipeda spec., Chaetocnema tibialis, Melolontha melolontha, Tipula spp.*	40 kg/ha Soil incorporated	1	-	
Potato	*Agriotes spp., Agrotis spp., Diabrotica spp.*	12 - 16 kg	At seeding or transplanting or ridging (BBCH 105-125)	-	
Sugar beet	*Chaetocnema tibialis, Atomaria linearis, Scutigerella immaculata, Tipula sp., Agriotes sp.*	12 - 16 kg	1	-	
Sunflower, Soy, OSR	*Chaetocnema tibialis, Agriotes sp., Hylemya sp., Agrotis sp.*	12 - 16 kg	1	-	
Sweet corn	*Agriotes sp., Hylemia sp., Scutigerella immaculata, Tipula sp., Agrotis sp., Diabrotica sp.*	12 - 16 kg	1	-	
Tobacco	*Agriotes spp., Agrotis spp., Diabrotica spp.*	12 - 16 kg	1	-	

Proposed Product label

- Composition : **0.5% Tefluthrin + Mineral NP (10:41) + Mn 3% + Zn 2%**
  - Family : Pyrethroid
  - Mode of action : ***contact, ingestion & vapor diffusion***
- Formulation : microgranules (density : 0.9)

- Crops : Veges.

- Dose rate : from **12 to 20 kg** depending on crops. Open field use only.
- Label : soil treatment (in furrow) against
  - **Wireworms, Scutigerella, Diabrotica, flies…**

- Nb max of applications : 1
- Buffer zone : TBC

Formulation comparison : a.i / ha

Product (kg/ha)	**Karaté 0.4 GR (4 g ai/kg)**	**Force Evo (5 g ai/kg)**	
12		60	g a.i /ha
15	60	75	g a.i /ha
16		80	g a.i /ha
20		100	g a.i /ha

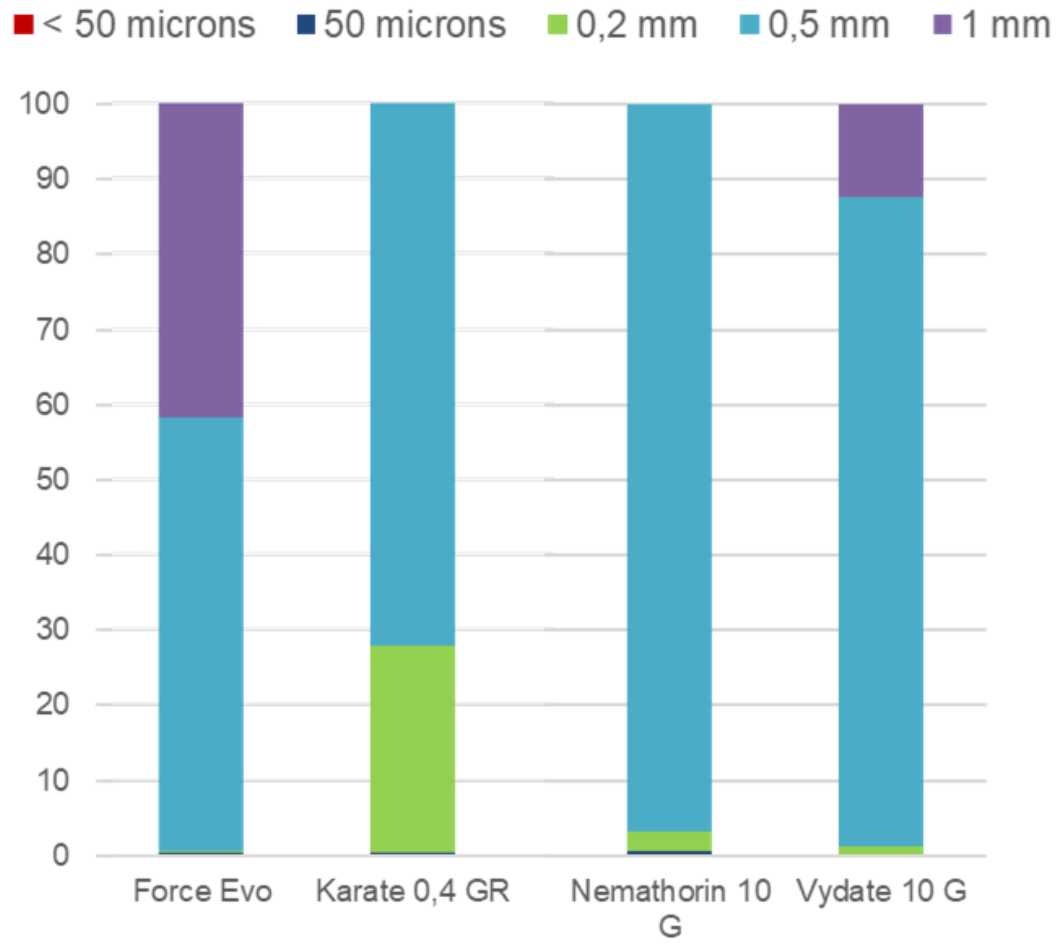
Formulations comparison

Karate® 0.4GR

Force® Evo

Granules sizing with sieve test

Timing : 1 min
Shakes : 70/min
Sampling : 100 g
Average of 2 rep

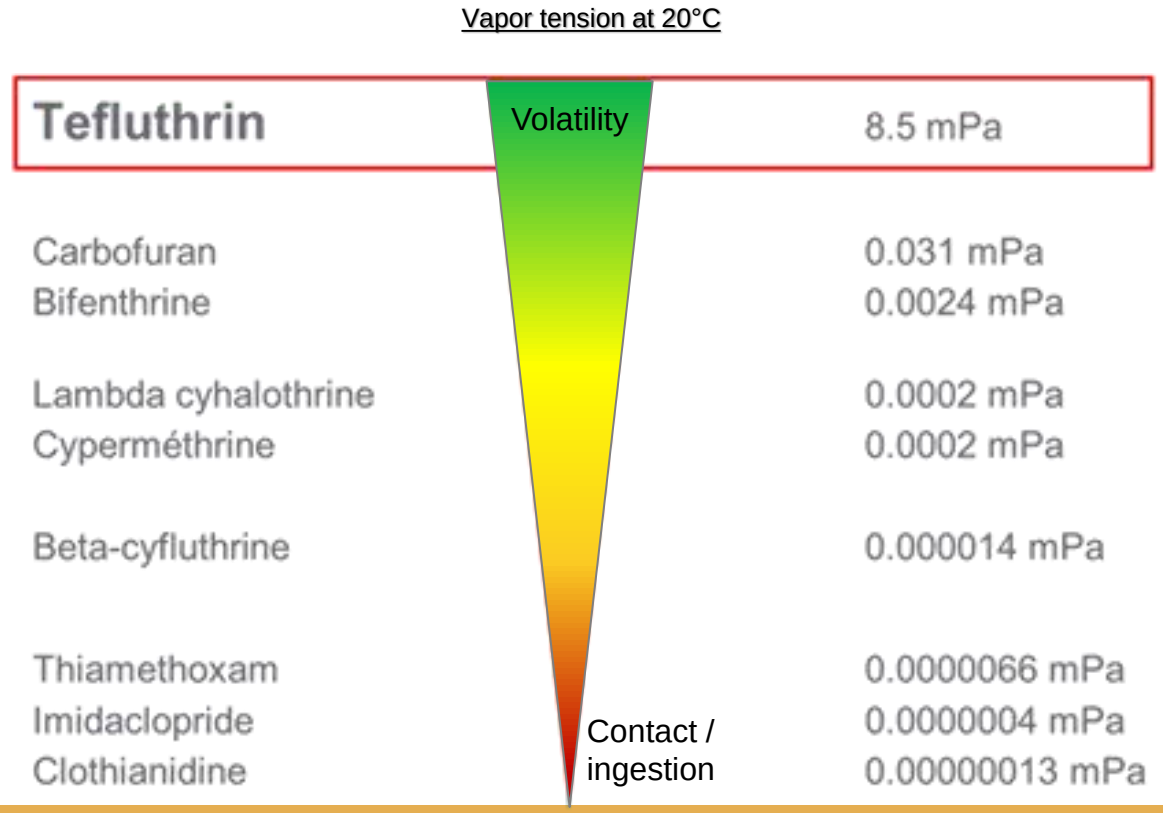


Low dust = 3-50g of dust per 100 kg of product and no granule size changes after shaking in Heubach tank

Vapor tension differences

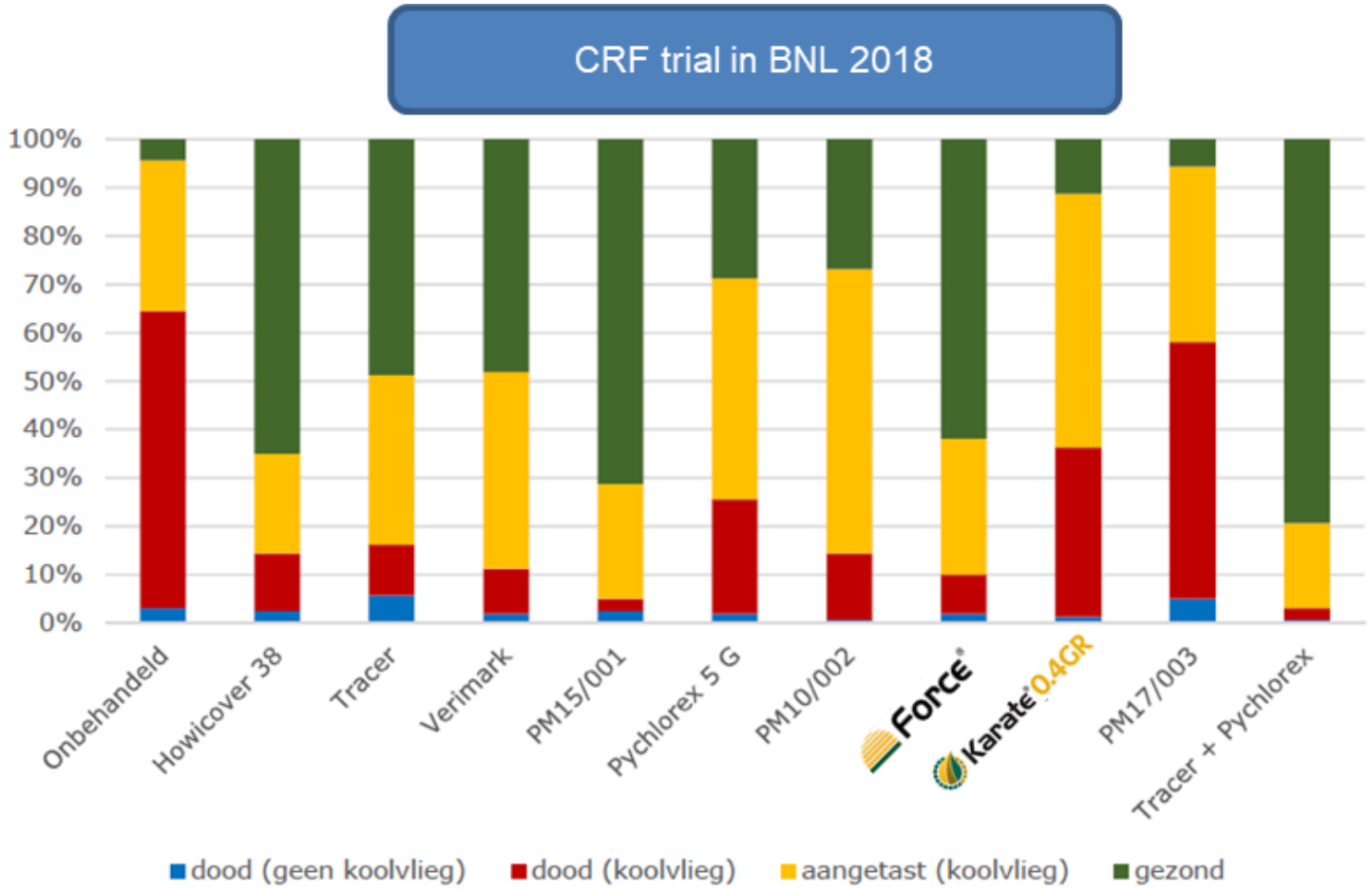
- ✓ Tefluthrin has the best vapor tension in soil compare to all insecticides. This vapor effect allows a high regularity in the field with good soil repartition and large area covered.

- ✓ With this good vapor effect, tefluthrin provides a very good early soil protection against a broad range of insects, but has also a good long lasting effect.

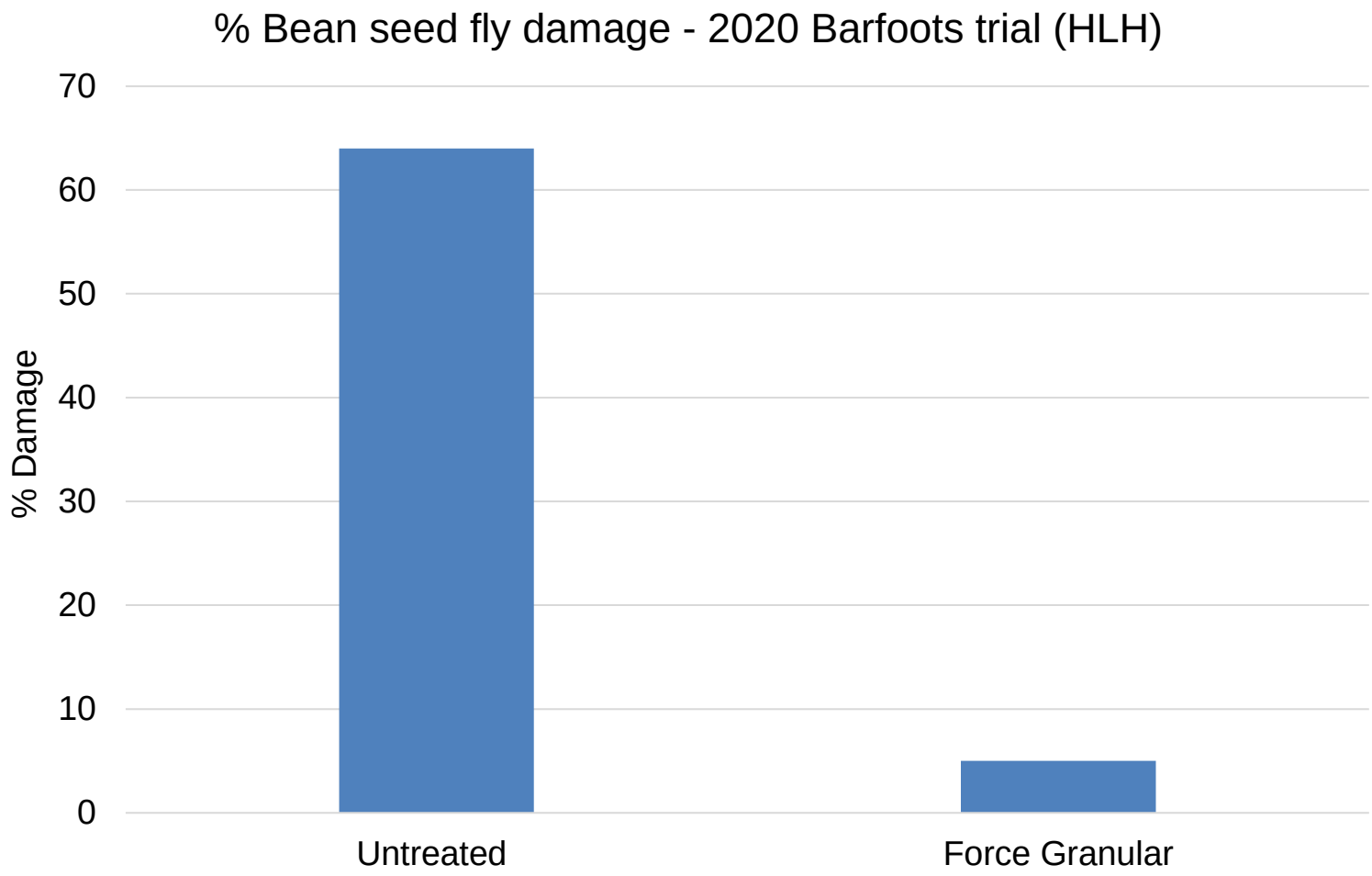


Fly control comparison information

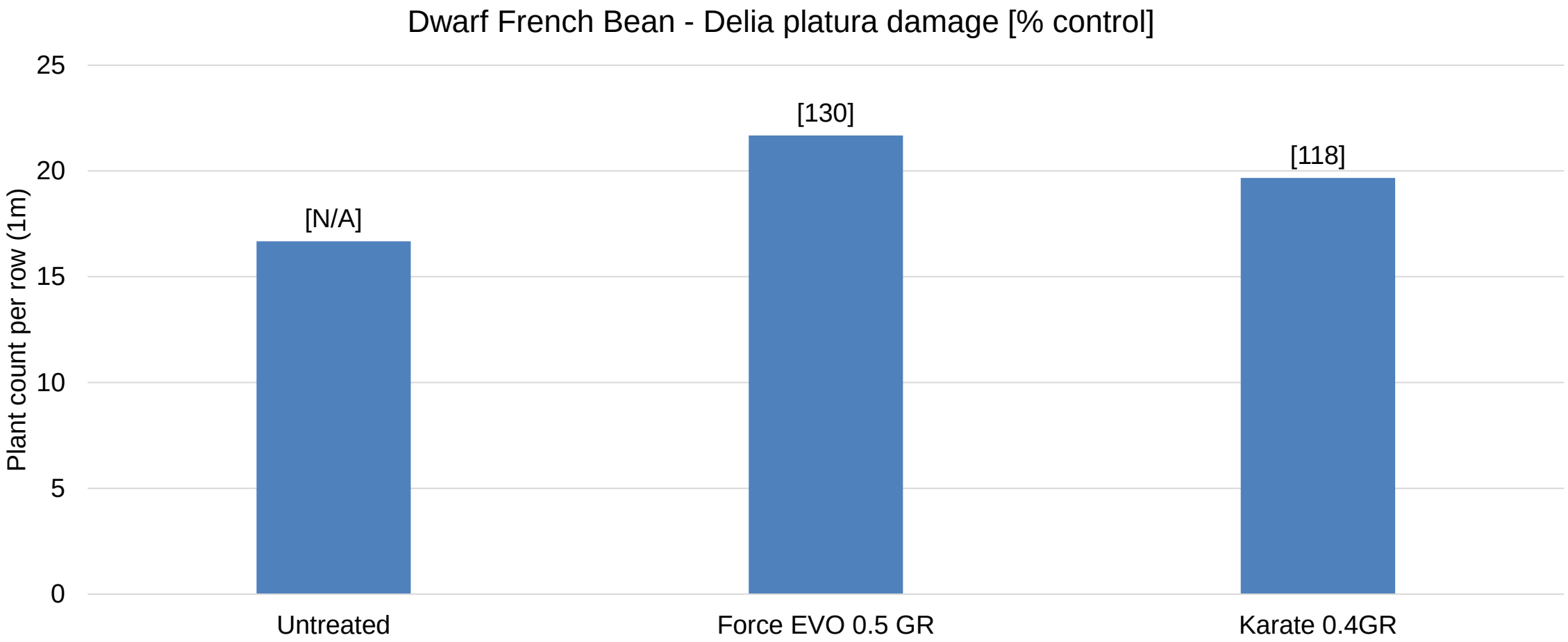
- ✓ Force: best granule to control flies.
- ✓ Limited data concerning LCY for fly control.
  Clear secondary effect.
- ✓ Diffusor important only in crops with deep sowing (>2cm), or planted crops like melon, tomato.
  No diffusor for brassica, onion, carrot.



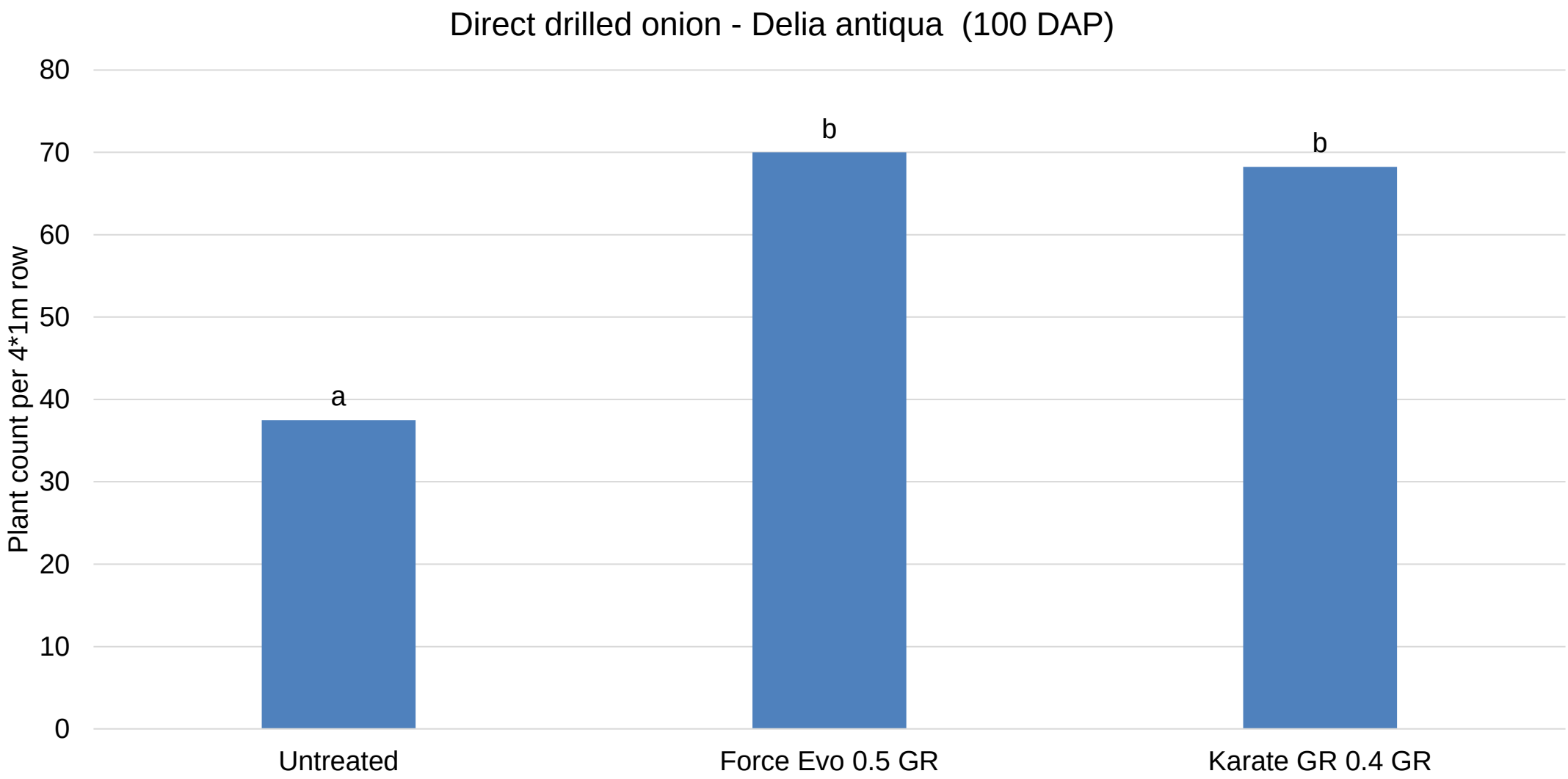
UK Force Evo Trials



Force Evo 2021 Trials



Force Evo 2021 Trials



UK Force Evo Trials

Force Granule

No residues detected

Untreated

Photo: Peter Waldock

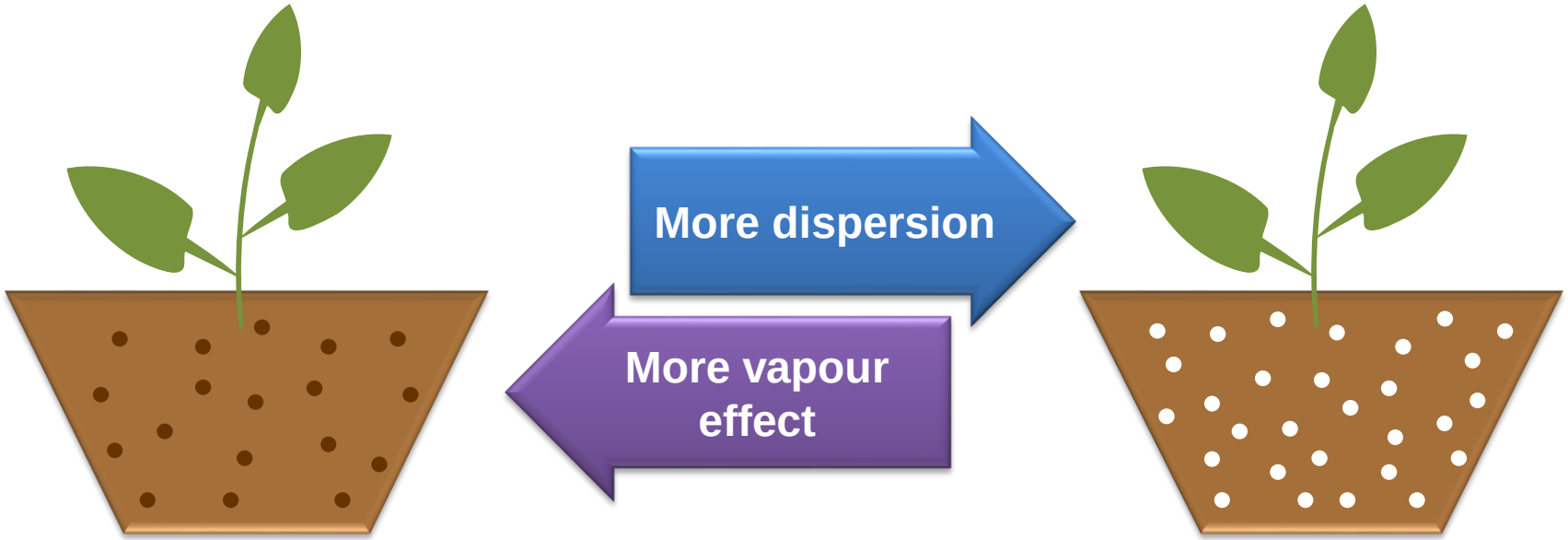
Benefits of both formulations

Force® Evo

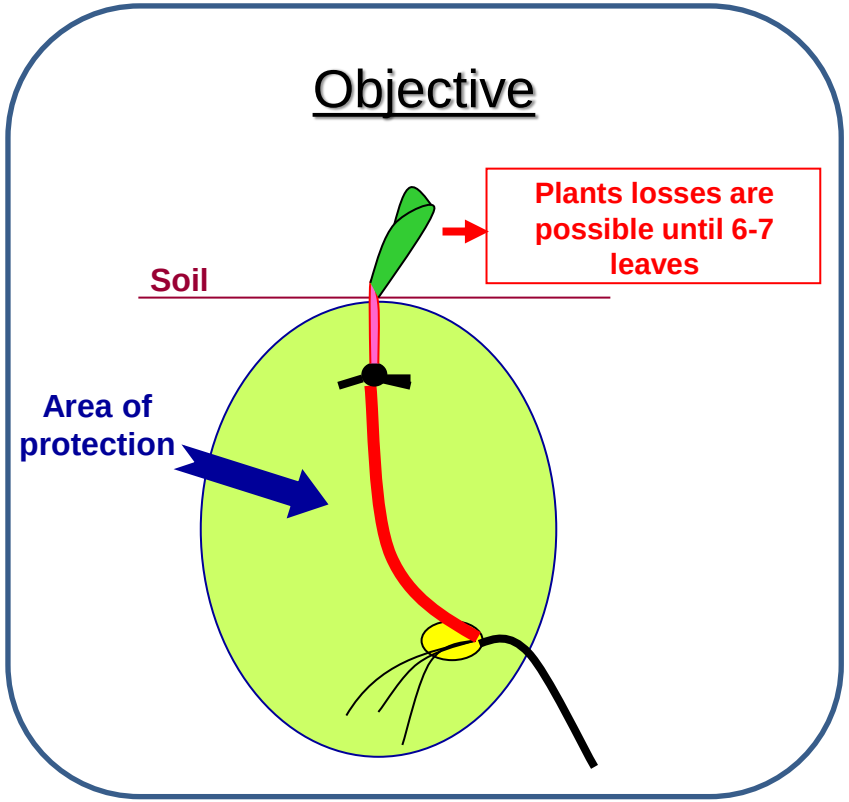
Rate = 12 to 20 kg/ha
Size of granules = larger
Vapour effect = strong

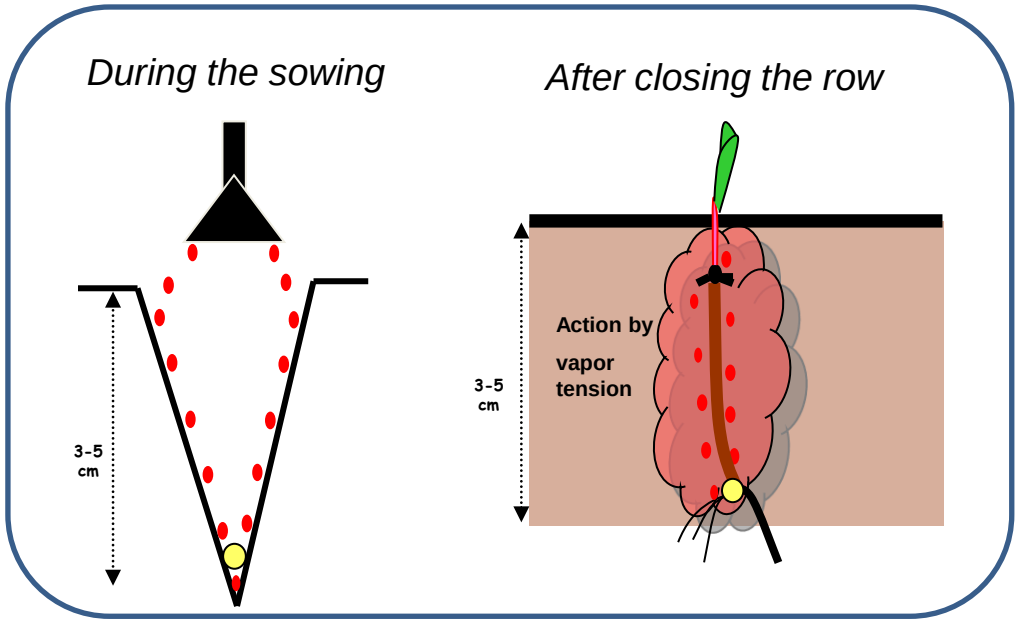
Karate® 0.4GR

Rate = 15 kg/ha
Size of granules = medium
Vapour effect = medium/low



Application: planting and incorporation in one pass





Use of Diffusors

Bean seed fly options

- ✓ Force Evo looking promising for Bean seed fly
- ✓ Karate Granule could offer some protection but lacks vapour activity for fly pests
- ✓ Force ST is an option but will be limited going forward from 2021

- ✓ Future TFT application options are also being explored

(Timeline = end of the decade)