



HDC Study Tour

# Ornamental Brassica/Kale

Holland

October 9<sup>th</sup> 2014

# Itinerary

## Seed supplier:

TAKII Seed, De Kwakel

## Growers:

Gijzen Berg & de Wit, Floraweg

Het Gamaal, Hensbroek

Keo, Hensbroek (field production)

Michel Smit, Hensbroek

## Attendees:

Growers, advisers & a packer

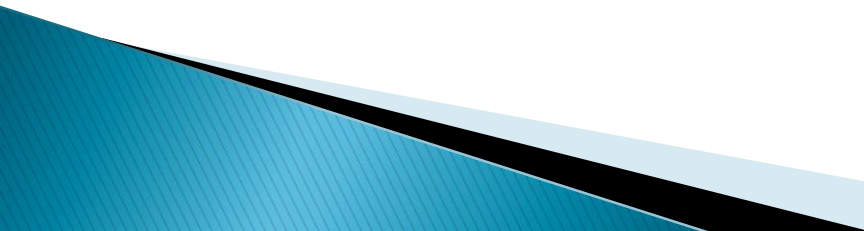


# Background

## UK & Irl

- ▶ Supermarkets interested in locally grown produce
- ▶ Off peak season when other crops have finished
- ▶ Greenhouse/field – no heating and minimal fertiliser req.

## The Netherlands

- ▶ Dutch production levels remain steady for past 5 years
  - ▶ Largest grower expanding (17ha), average NL grower 2ha
  - ▶ 70% white, 30% red/pink
  - ▶ Field production in rotation with sunflowers
- 



**TAKII EUROPE B.V.**

# Seed breeder

- F1 Crane Series – Bicolour, Rose, Red, Pink & White
- Developing Crane Red & Rose – 15cm taller, start colouring 2 weeks earlier and stronger stem
- Series development: feathered leaves and earlier/later harvesting





# F1 Crane Series



Pink



Red



Rose

# F1 Crane Series



Bicolour



White

# Series Development



# Market Specification

- 65–80cm stem
- 9–12cm round head
- Full rosette of leaves
- Blemish free
- Expected vase life min.12 days
- Price range 25p – 70p
- Sold in bunches of 10
- August to February sales
- Market 70% white, 30% red/pink



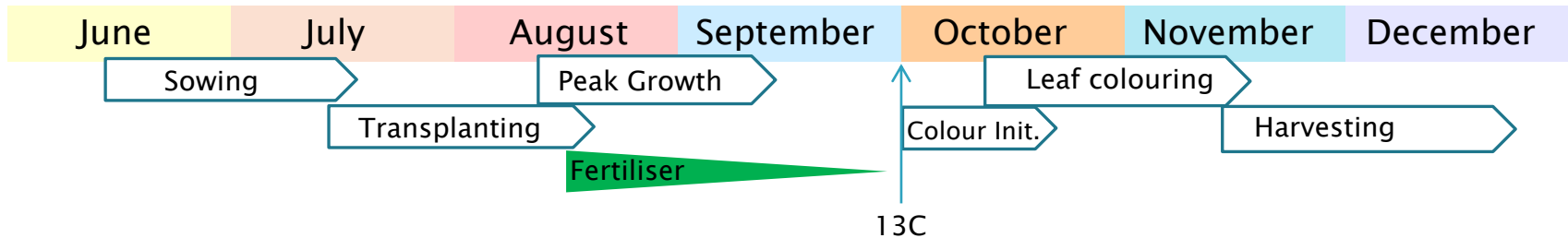


# General Cultural Notes

- ▶ Ideal soil pH 6–7
- ▶ Requires 1 row of wire netting – greenhouse/field
- ▶ Low nutrient requirement – stop feeding once colouring begins
- ▶ High fertiliser levels also lead to excessive leaf growth
- ▶ Greenhouse: once established reduce watering – helps colouring



# Example Production Schedule\*



1. Sowing – mid June to mid July
2. Transplanting – mid July to mid August
3. Growing – Aug to September peak growth period
4. Colour Initiation: Late September/October. Night temp below 13C for 2 weeks ensure no fertiliser application thereafter
5. Leaf colouring: Mid Oct – Nov. Affected if average temp rises above 25C – revert to green but will re-colour
6. Harvesting – mid November to December

# Transplants – Greenhouse

- ▶ Available in 408 plug trays
- ▶ Weeks 23–33 (June–mid Aug)
- ▶ Transplant at 2–3 true leaf stage
- ▶ Planting density 70–75 per m<sup>2</sup>
- ▶ Expect loss max 10%
- ▶ Ideal growing on temperature 10C–18C



# Direct Sowing – Field/Greenhouse

- ▶ 100 –120 seeds per m<sup>2</sup> direct sown greenhouse/field
- ▶ 10cm–12cm between rows
- ▶ Germinate within 4–5 days
- ▶ Sowing period in NL – May to June
- ▶ Light needed to germinate seed
- ▶ Expect max loss 40% in field = harvest  
60– 72 plants per m<sup>2</sup>





# Spacing

- ▶ High density spacing is very important, 65–80 plants per m<sup>2</sup>
- ▶ Determines size of head & stems
- ▶ Low density = large heads & thick stems not suitable for florists
- ▶ Low density = excessive lower leaf growth making raising wire netting difficult



# Pests, Diseases & Disorders

- ▶ Caterpillars – White Cabbage Moth
- ▶ Aphids
- ▶ Botrytis
- ▶ Leaf spots
- ▶ Downy mildew
- ▶ Twisting stems
- ▶ Bolting
- ▶ ‘Leaf tipping’ – high humidity







## Chemical control of Brassica diseases

Example approved products (both on-label and EAMUs) for the control of Brassica diseases on outdoor crops (December 2013)

	Active Ingredient(s)	Product Example	Target Disease	Broccoli	Brussels sprouts	Cabbage	Cauliflower	Chinese cabbage	Kale and collards	Swede and turnips
Field treatments	Azoxystrobin	Amistar	Dark leaf spot, ringspot, powdery mildew, white blister	✓	✓	✓	✓		✓	✓
	Azoxystrobin + difenconazole	Amistar Top	Dark leaf spot, ringspot, white blister	✓	✓	✓	✓		✓	
	Boscalid + pyraclostrobin	Signum	Dark leaf spot, ringspot, white blister	✓	✓	✓	✓	✓	✓	
	Chlorothalonil + metalaxyl M	Folio Gold	Dark leaf spot, downy mildew, ringspot, white blister		✓		✓			
	<i>Coniothyrium minitans</i> (soil treatment)	Contans WG	Sclerotinia	✓	✓	✓	✓	✓	✓	✓
	Copper oxychloride	Cuprokyt	Xanthomonas, spear rot	✓	✓	✓	✓	✓	✓	
	Difenconazole	Plover	Dark leaf spot, ringspot	✓	✓	✓	✓	✓	✓	
	Fluopicolide + propamocarb hydrochloride	Infinito	Downy mildew			✓	✓			
	Flusilazole	Nustar 25	Phoma		✓					✓
	<i>Gliocladium catenulatum</i> strain J1446	Prestop	Rhizoctonia	✓	✓	✓	✓	✓	✓	✓
	Mancozeb + metalaxyl-M	Fubol Gold WG	White blister			✓				
	Metalaxyl-M	SL567A	White blister	✓					✓	
	Prothioconazole	Rudis	Dark leaf spot, light leaf spot, phoma, powdery mildew, ringspot	✓	✓	✓	✓			✓
	Tebuconazole	Folicur	Dark leaf spot, light leaf spot, powdery mildew, ringspot	✓		✓	✓	✓		✓
Tebuconazole + Trifloxystrobin	Nativo 75WG	Dark leaf spot, light leaf spot, phoma, powdery mildew, ringspot	✓	✓	✓	✓				
Seed and propagation treatments	Fosetyl aluminium + propamocarb hydrochloride	Previcur Energy	Downy mildew	✓	✓	✓	✓	✓	✓	
	Thiram (seed treatment)	Agrichem	Rhizoctonia, damping off			✓	✓			✓
	Metalaxyl-M (seed treatment)	Apron XL	Damping off ( <i>pythium spp.</i> )	✓	✓	✓	✓	✓		
	Tolclofos methyl	Basilex	Rhizoctonia	✓	✓	✓	✓	✓		✓
	Dimethomorph	Paraat	Downy mildew	✓	✓	✓	✓	✓	✓	

✓ = Full approval or EAMU    ■ = No approval

These factsheets are intended to provide growers with information on results and practical applications from HDC and non-HDC-funded research and development. They are not intended to endorse or recommend the use of any products or active ingredients mentioned. Only products officially approved as plant protection products should be applied to control pest, disease and weed problems or used as plant growth regulators. Before using any such substance, growers should refer to product approval and label documents, seek guidance from a BASIS qualified consultant and consult their customer's plant protection product list.

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# Colouring

- ▶ Low nutrient levels, dry cultivation and low night temperatures aid colouring.
- ▶ Colouring begins at lower temperatures in autumn when night temperatures drop below 13 C. Plants can tolerate a slight frost.
- ▶ Indoor crop from a July sowing, should start colouring by mid-October and be ready for harvest by mid-November.
- ▶ Outdoor crops normally start colouring from August/September onwards.



## Colour difference between indoor and outdoor crop



Greenmount Campus 4<sup>th</sup> growing week – September 29<sup>th</sup> 2014.

# Harvesting

- One pick or a bed per week
- Mechanical harvesting option
- Cut at base & remove unwanted leaves by hand
- Expect yield 90% for white and 85%+ for other var.





# Retail Market – Mixed bouquets



New

## Christmas Blackberry & Apple

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### Includes:

- 3 x Purple bloom chrysanthemum tornado
- 3 x Purple brassica glittered gold
- 3 x White hypericum
- 3 x Green pistache
- 7 x Pink rose equis

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# Florist

Dye & Glitter



[www.trianglenursery.co.uk](http://www.trianglenursery.co.uk)

[www.metropolitanwholesale.com](http://www.metropolitanwholesale.com)

Open leaves – rosette



<http://disha-doshi.blogspot.co.uk>

Wholesale £1 – £1.30 per stem

# NI Opportunities

- ▶ A cool greenhouse or field crop that fills the autumn–early spring production gap
- ▶ Early & season extension market – NI’s climate cooler may suit earlier & later colouring – Cafre investigating
- ▶ Increasing demand for locally grown from UK retailers – evidence of reducing demand for Dutch grown

