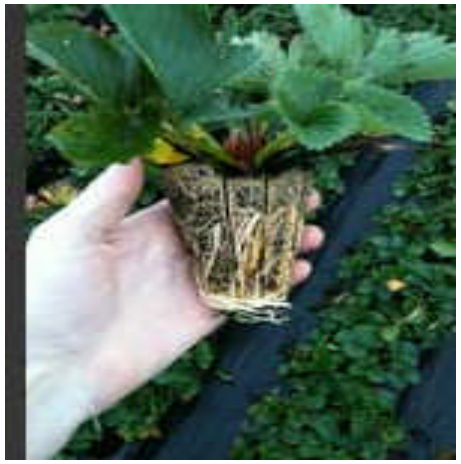
Getting off to a good start

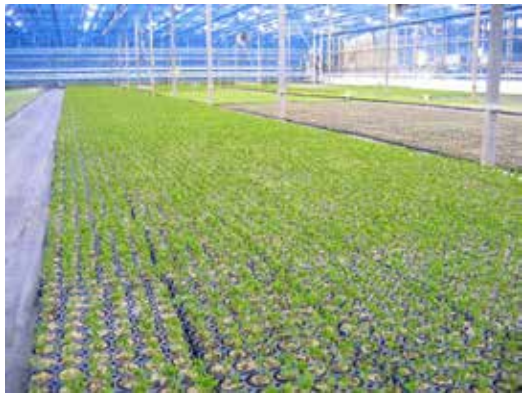
- The importance of achieving a resilient and balanced crop at propagation
- Introduce some simple steps
- Practical observations

Neil Procter

KOPPERT BIOLOGICAL SYSTEMS

In the beginning:-





Issues associated with imbalance

- Additional nursery costs upon plant arrival
- Lack of Uniformity
- Disease incidence
- First truss development
- Stress Points

NatuGro Approach

From Control model

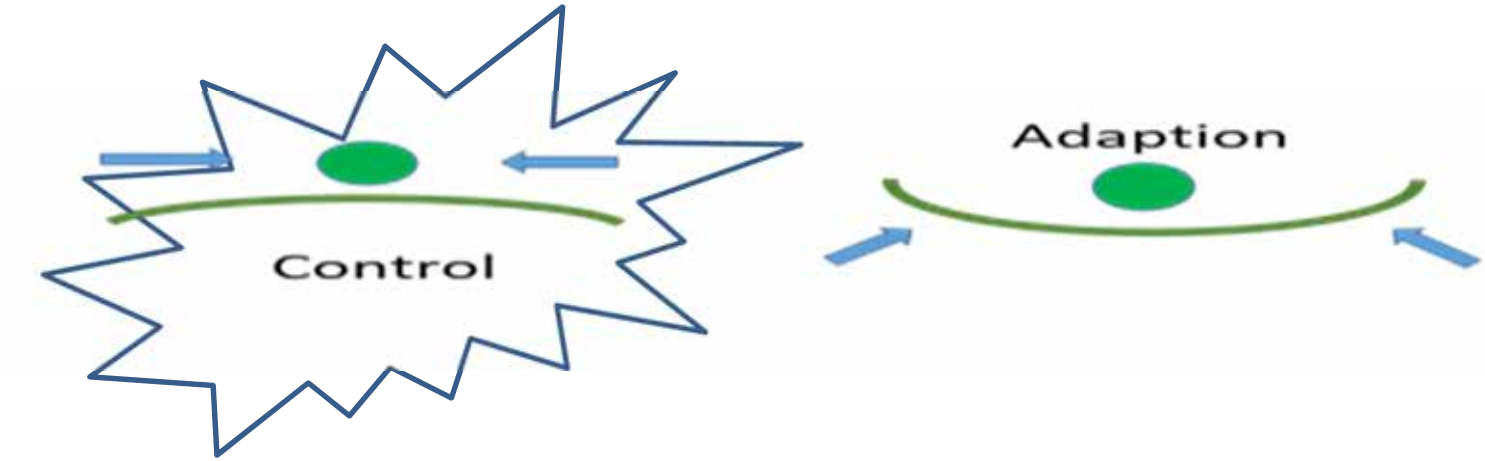
- Focus on problem
- Eliminate variation
- Continuous monitoring
- Direct action on problem
- Static equilibrium

To Resilient model

- Focus on system
- Utilize variation
- Stimulate self-regulation
- Indirect action on problem via system
- Dynamic equilibrium

Status Quo Requirements

- Specification
- Sterile and clean!!
- Use of chemicals
- Series of stress points
- Separate from overall programme



A more Natural and Resilient Approach

- Challenge stress points
- Identify young plant requirements
- Build a plant for your requirements
- Bring into crop programme

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Needs:

- Good Quality Bio-stimulants
- Healthy and Active Root System
- Managed & Diverse Rhizosphere

Leads to:

- Coping with Abiotic Stress
- Less chemical dependency
- Ready for next stage(s)
- Value added

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Practical Experiences

ProParva
Trichoderma
Rhizobacteria

Ireland, UK & NL

<u>Stress or Programme?</u>

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Agrobacteria in Tomatoes

Needs specific steering to optimise yield

- Potential yield loss – 15%+
- Initial infection?
- **It starts at the Kiemplug stage**

Product	Rate	Method
Trianum P	1.5 gms/m^2	Drench
Linafer P	1 ml/m^2	Drench
ProParva	1 ml/m^2	Drench

Block

Product	Rate	Method
Trianum P	1.5 gms/m^2	Drench
Linafer P	0.5 ml/m^2	Drench
ProParva	0.5 ml/m^2	Drench

Programme continues at nursery – stress points

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Matthiola (stocks) with NatuGro

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Crop establishment (from propagation)

	Product	Goal	Appl. Method	Dose	Frequency	Interval	Remarks
	Trianum	Protection soil diseases	Drip/Drench	3 g m/2	once		Start at planting 29,31
	ProParva	Root growth	Drip/Drench	250ml/1000 m/2	2x	1 week	Start at planting 29.30.31
mix	ProFortum	Vegetative growth	Drip/Drench/Spray	250ml/1000 m/2	4x	2 weeks	Start after ProParva. Wk 31, 32.33.35.36 as an example
together	ProTerrum	Extra energy and production	Drip/Drench/Spray	250ml/1000 m/2	4x	2 weeks	Start after ProParva. Wk 31.32.33.35.36 as an example

Note, rates for ProFortum and ProTerrum are 500 mls per 1000 m/2 But when mix together are reduced 50%

Note: In case of Calcium shortage, our bio-Ca can be used as a highly effective way to increase plant Ca-levels.
Application dose is around 0.2% in the feed solution. Extra Ca increases cell strength and fruit firmness and may positively affect fruit taste

Rooting of ornamentals

Trichoderma:		1 g/plnt 1x
ProParva:	5 l/ha	1 to 2x

CONTROL

NATUGRO

Grower trials, The Netherlands 2012

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Further Examples

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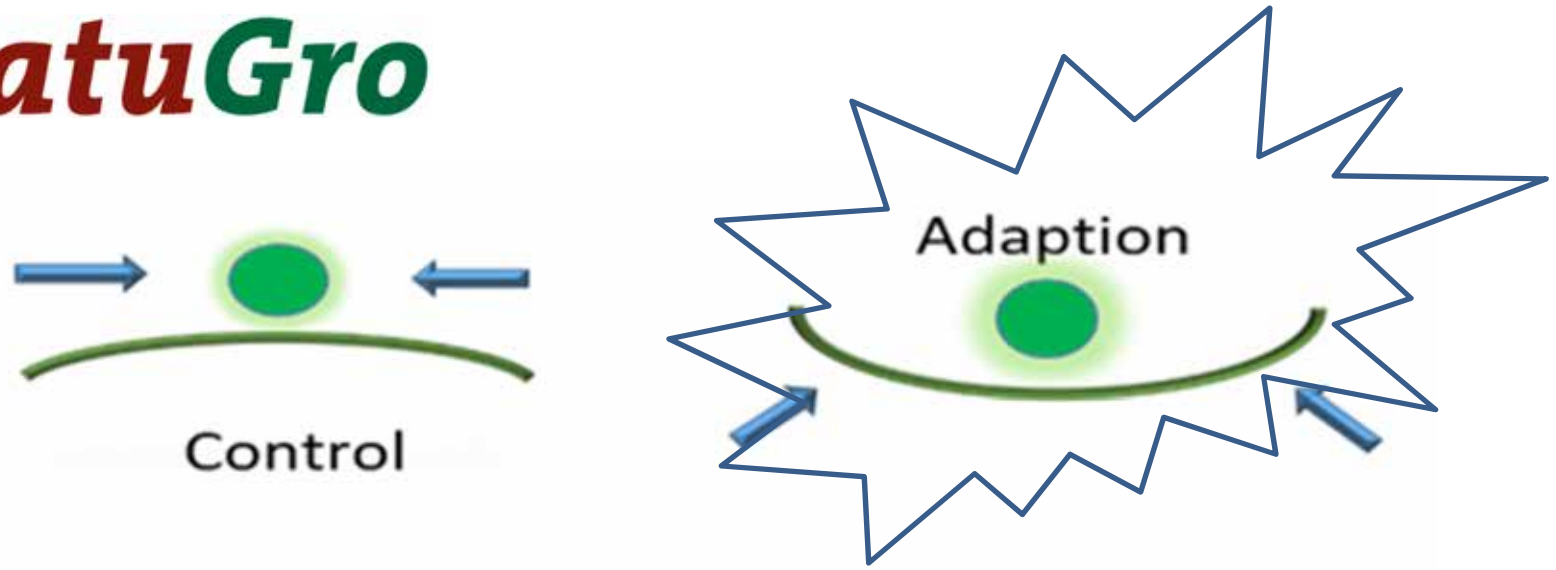

A balanced approach starts at propagation and continues throughout the production cycle.

Thank you