International Conference on Enhanced-Efficiency Fertilizers

An IFA-New Ag International Event
23-24 March 2010
Hotel Hyatt Regency, Miami, FL, USA

CRF COMPONENT, THE WISE NUTRIENT SUPPLEMENT SOLUTION

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International Fertilizer Industry Association

NEW AG INTERNATIONAL

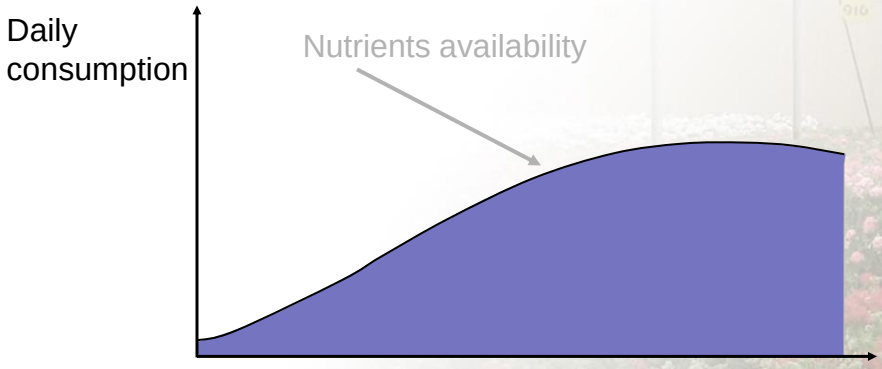
CRF component, the wise nutrient supplement solution

Eran Barak

Teaspoon Feeding™

Nutrients availability follows plant's requirements

Teaspoon Feeding™

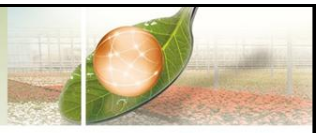


Teaspoon Feeding™

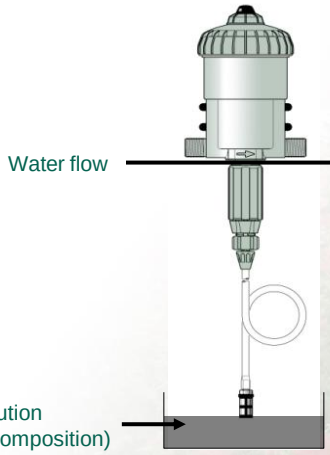
- The formula needed (NPK+)
- Rate needed
- When it is needed
- Where it is needed

- Without wastes and contamination

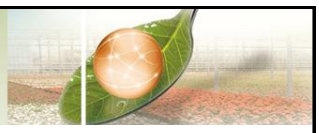
Proportional *Nutrigation*™



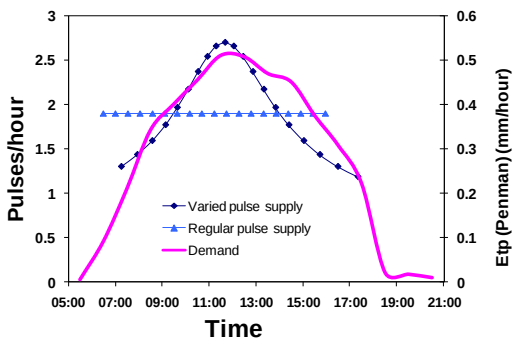
Solutions for advanced (large) farms



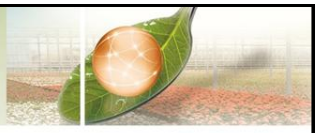
Atmosphere



Meteorological station
Potential ET

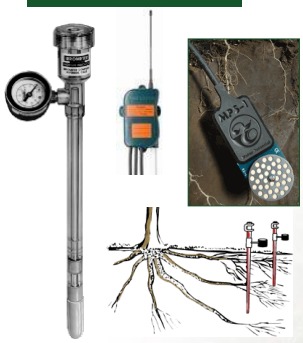


Soil and Water



- Tensiometers
- Soil water content probes
- Soil salinity probes

Potential - tensiometers



Capacitance - conductance

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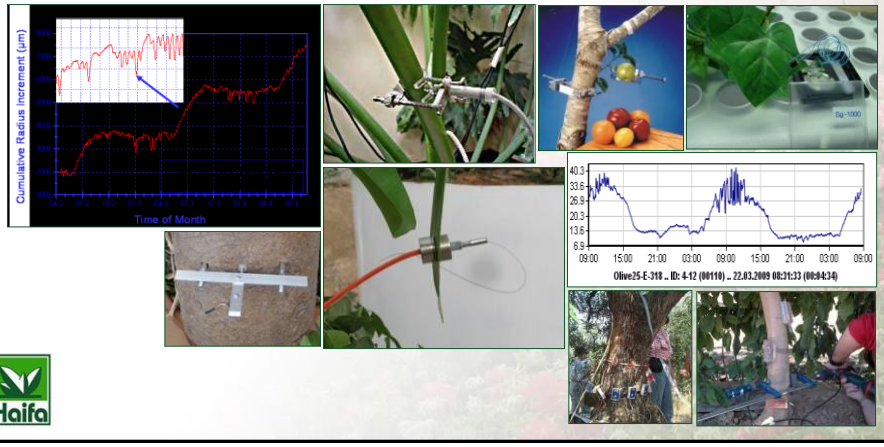
Controlled subsurface *Nutrigation*™

Plant

- Dendrometers
- Canopy temperature
- Plant water status (sap flow, turgor, stem water)

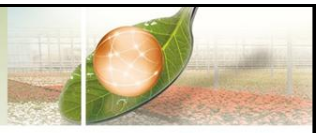


Controlled Release Nutrition

CRF Fertilization is independent of irrigation system:

- Reduced losses by leaching
- No need for “technical irrigations”
- No need for sophisticated dosing systems and its maintenance
- Nutrition synchronized with plant needs through the temperature.

Controlled Release Fertilizers



- Know-how and technology are built-in
- Seem simple, perform sophisticatedly

Suit growers of all levels

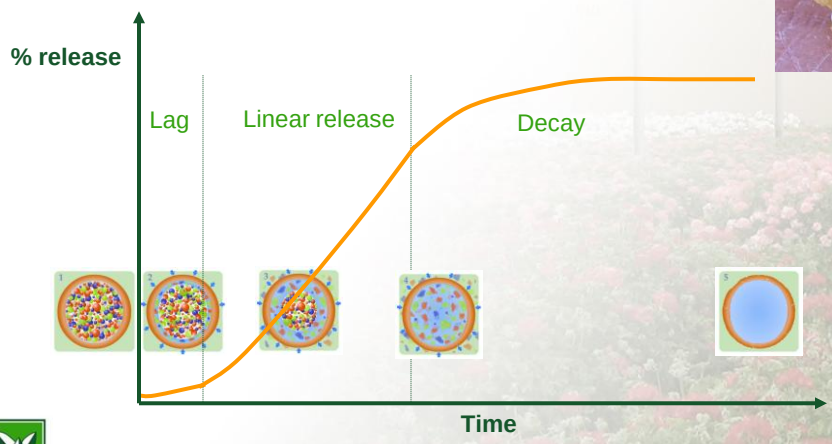
multicote®

The Brains Inside

Haifa

Polymer coating Technology

Typical release curve –
mimics the plant consumption one



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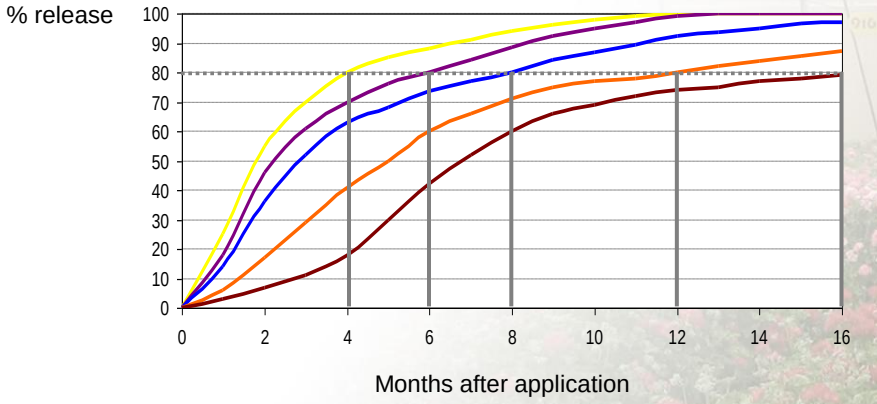
Polymer coating Technology

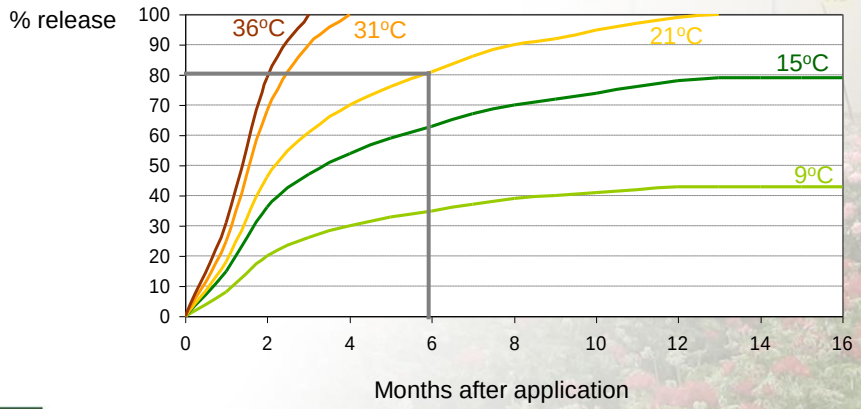
Various longevities



Multicote® **P.C 4** **P.C 6** **P.C 8** **P.C 12** **P.C 16**

Polymer coating Technology

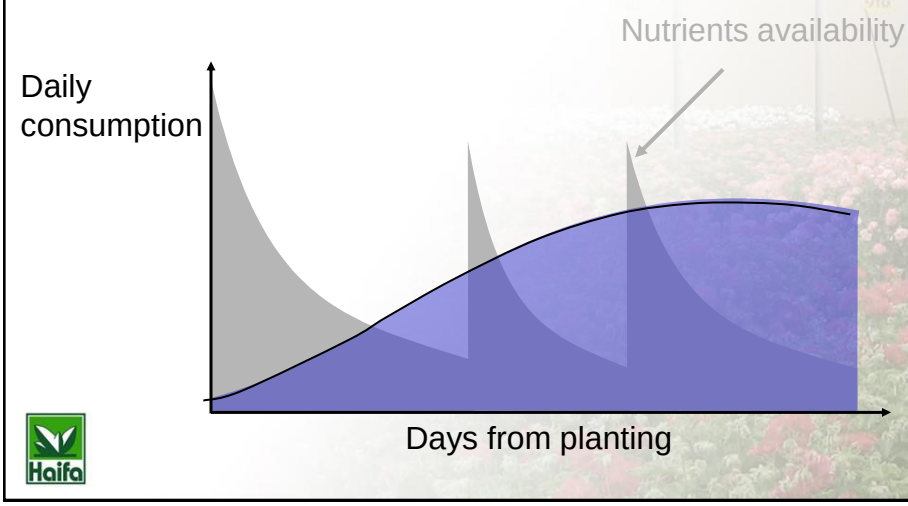
Release rate, longevity & temperature (6M product)



Synchronized with plant growth between 5-36 C.

Regular fertilization

Base Dressing + Side Dressings



The challenge: single application

- Regular fertilizers are cheaper.
- Regular fertilizers are readily available (good “starters”).
- However, side / top dressings are needed during the season.

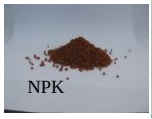
The challenge

- Apply nutrient only once during the growth season
- Minimize volatilization
- Minimize leaching
- Minimize irreversible adsorption and fixation

Combinations of coated & conventional Fertilizers

- To protect "problematic" nutrients in the soil, apply them as coated fertilizers
  - Reduce volatilization (Urea)
  - Reduce leaching (Urea, Nitrate, Potassium)
  - Reduce fixation (Phosphates, TE, etc.)
- Release the main "problematic" nutrient over time – no need for mid season application
- Increase NUE
- Save work
- Save water

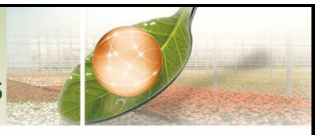
Polymer coated Components



Fertilizer	Longevity							
	UC*	2	3	4	6	8	12	16
MAP	■	■		■		■		
MAP mini	■							
KNO_3 prills	■	■		■	■	■	■	
KNO_3 mini	■			■				
UREA prills	■	■		■				
MgSO4	■			■				
UREA granular	■	■	■	■	■	■	■	
NPK 15-7-15 + ME		■		■	■	■	■	■
NPK 14-14-14				■	■	■	■	

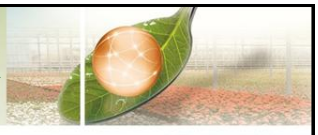
*UC = Un Coated

The principles of blending coated components with regular fertilizers



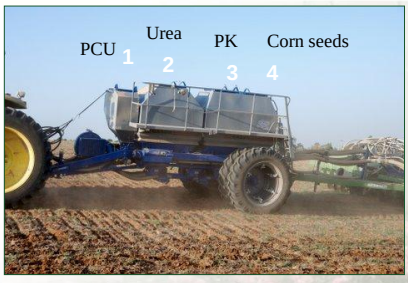
- More rain / irrigation > more coating.
- Lighter soil > more coating.
- Longer the crop cycle > more & longer coating.
- Warmer soils during crop cycle > more & longer coating.
- Application method (top dressing, incorporation, banding).
- Economical performance.

Setting proportions of coated N-P-K



		Sand>70% (Sand, loamy sand)	50%<sand<70 % Medium sandy	Silt>40% Silt, silty loam, silty clay	Clay>60% Clay loam, clay
Arid/semi arid or protected crops	does not exceed the crop demand	75-10-25	75-10-25	50-10-25	50-10-25
Arid/sub Mediterranean	**(rain) + irrigation** can exceed the crop demand; rarely heavy rain	100-0-50	75-0-25	50-25-25	50-25-25
Rainy sub continental, humid tropical	heavy events and **rain** often exceeding the crop demand	100-10-75	100-10-50	75-10-50	50-10-50
Humid tropical	**rain** is constantly exceeding the crop demand, with heavy events; no irrigation	100-30-100	100-20-75	80-10-50	75-10-30

Sowing and applying coated and conventional fertilizers, all in one operation



Application of coated & conventional fertilizers

Soil surface

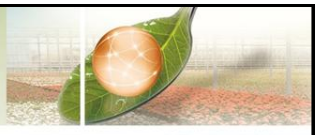
3-5 cm ↓

Seeds / CRU

5 cm ↓

CRF / Regular

Summary



Combine CRF components and conventional fertilizers

- *Teaspoon Feeding* concept
- Follows the plant requirements
- Reduce volatilization, leaching and fixation > increase NUE

Fit to all farmer levels > the brain inside

Thanks