EASY
Efficient Agriculture Systems by CLAAS.
CROP SENSOR ISARIA – July 2013

CLAAS Agrosystems KGaA mbH & Co KG
CROP SENSOR – ISARIA
measuring technology

CROP SENSOR – the system

- Quick installation
  - easy handling
- High precision

- Mounting at tractor front
  - sufficient distance to point of application
    - enhanced precision
  - quick and simple 1-person mounting
  - no interference in dusty conditions
  - measurements straight from above rather than an angle

- Sensors measure at a distance of 3 m from the tramlines in a representative part of the crop

- no hydraulic connections will be needed

- stable aluminium frame

- different adapters available for several mounting options
CROP SENSOR ISARIA
Biomass Index Data - IBI

**ISARIA – tractor front – boom-mount**

- Overhead view
  - Focusing on the relevant leaf layers
  - More precise in terms of crop density
  - High frequency of measurements = frequently repeated measurements at the plants considered
CROP SENSOR ISARIA
Vegetation Index Data - IRMI

- Active light sensor
- 4 high performance LEDs
- 24 h to use
CROP SENSOR ISARIA
Data Optimisation

Combination of both for optimum results
CROP SENSOR ISARIA
In Practice – biomass-threshold

IBI

Frost damage

Drought
2- point calibration

1. Calibration run using a representative tramline (good and bad parts of the field in this area)

2. Result is INDEX min and INDEX max (P1, P2 in the graph).

3. Allocate a rate to P1 and P2 index. This defines a crop specific algorithm.

4. At left side of the graph determine rate limits (min and max rate)

Agronomic knowledge of the farmer is needed

Sensor applies only what the user wants!

Info:
Universal mode to be used in all crops and situations.
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Application Methods

Fertilizing

1. Levelling calibration
   Reduce N for strong plants, increase N for weak areas
   (Index high = -) (Index low = +)

2. Quality focused calibration
   (increase N for strong plants, reduce N for weak areas)
   (Index high = +) (Index low = -)

Growth regulators
   Increase amount for strong plants, reduce for weak areas
   (Index high = +) (Index low = -)
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Application – Fertilising System

Fertilising system

1. Based on the input of relevant parameters the system selects the best algorithm.

2. Variety independent investigation of N supply without the need to leave the cab.

3. Continuous calculation of the optimum fertiliser rate and simultaneous spreading on-the-go.

Fertilising know-how built into the ISARIA System

N-supply measurement and calculation of N rates without further calibration.

Info:
Algorithms are the results of 20 years of research at the Technical University of Munich.
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Application – Fertilising System

Fertilising system with Map Overlay

Challenge: yield potential within a field varies heavily
- Map Overlay zones: different areas with different yield potential are defined for a field.
- Map Overlay overrides the sensor-calculated rates in deviant yield potential zones
- Influence of the soil quality is considered
- Applies fertiliser to those parts of the field which have the potential to furnish higher yields

Combination of sensor based target rates and yield potential provides best results.

This procedure allows to make extra use of your CLAAS yield data.

Info:
+ maximum N-saturation
+ reduction of N surplus
+ enhanced N-balance
+ saves money
+ protects the environment
CROP SENSOR ISARIA
Variable Nitrogen Benefits

Uniform N Application

Variable N Application

Wood et al., 2003
### Yield Benefits

<table>
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<tr>
<th>Seeds per m²</th>
<th>Plants per m²</th>
<th>Nitrogen Strategy</th>
<th>Mean N dose (kg/ N ha)</th>
<th>Yield (t/ha)</th>
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Wood et al., 2003
CROP SENSOR ISARIA
customer value

N- saving
Less lodged grain
Optimal distribution
Use whole yield potential

levelled N-balance
Better N-utilisation
Increased yields
Increased grain quality
Any Questions?