



*The Abdus Salam
International Centre for Theoretical Physics*



2025-17

Satellite Navigation Science and Technology for Africa

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John Deere Presentation

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Zweibrücken
Germany*



Satellite Navigation Science and Technology for Africa

Alexander Sassenberg
Manager, Business Development



Content

- John Deere – **AgManagement Solutions** (AMS-Europe) Overview
- Today's Customer Business Challenges
- Benefits and Values of Guidance Systems
- Summary
- Yesterday's Future



John Deere – **A**g **M**anagment **S**olutions (AMS)





IMET



- Intelligent Mobile Equipment Technology (IMET) provides a wide range of GPS based guidance and documentation products, i.e.
- Automatic Steering Systems
- Documentation
- Telemetric Solutions



John Deere AMS-Europe

- AMS is part of IMET (Intelligent Mobile Equipment Technologies) organization of John Deere
 - AMS (~200 employees)
 - Phoenix International (~700 employees)
 - NavCom Technologies (~100 employees)
- Focus on trends und customer needs for productivity gains, documentation und management solutions
 - Development of “intelligent solutions” with clear customer value
 - Integrated systems for the management of Ag enterprises
 - 360° support thru John Deere dealer network, Preferred Software-Partner with hotlines and StellarSupport Internet side



History AMS Europe

- 1997 Start of **Precision Farming** Group at JDWZ, Germany
- July 2000: **Ag Management Solutions** (AMS) is born with AMS Europe as an integral part
- November 2001: **AMS Europe** moves to M.I.P. in Zweibrücken to allow further expansion
- July 2005: AMS becomes part of **Intelligent Mobile Equipment Technologies (IMET)**
- November 2006: '**John Deere AMS Europe** – A Division of Deere & Company' goes live



John Deere in Africa



**JD International
Schaffhausen, CH**

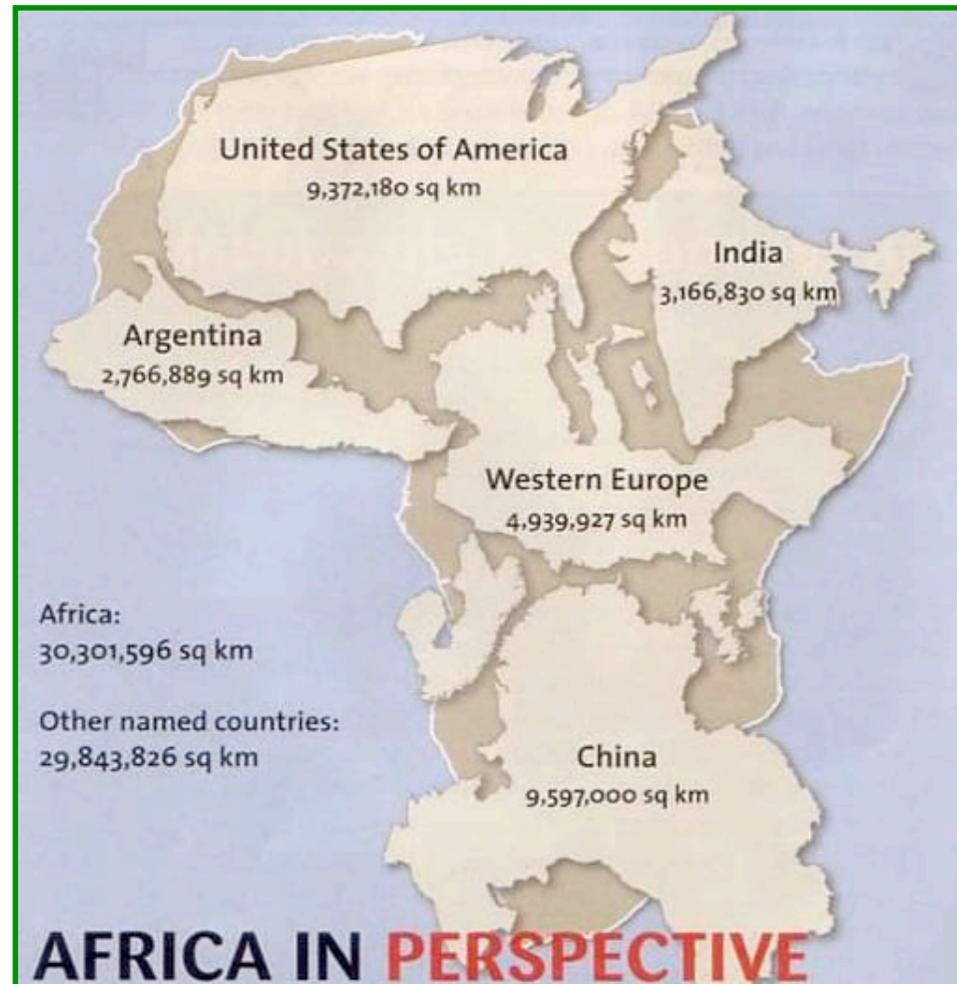


**New JD SA Branch
Boksburg, South Africa**

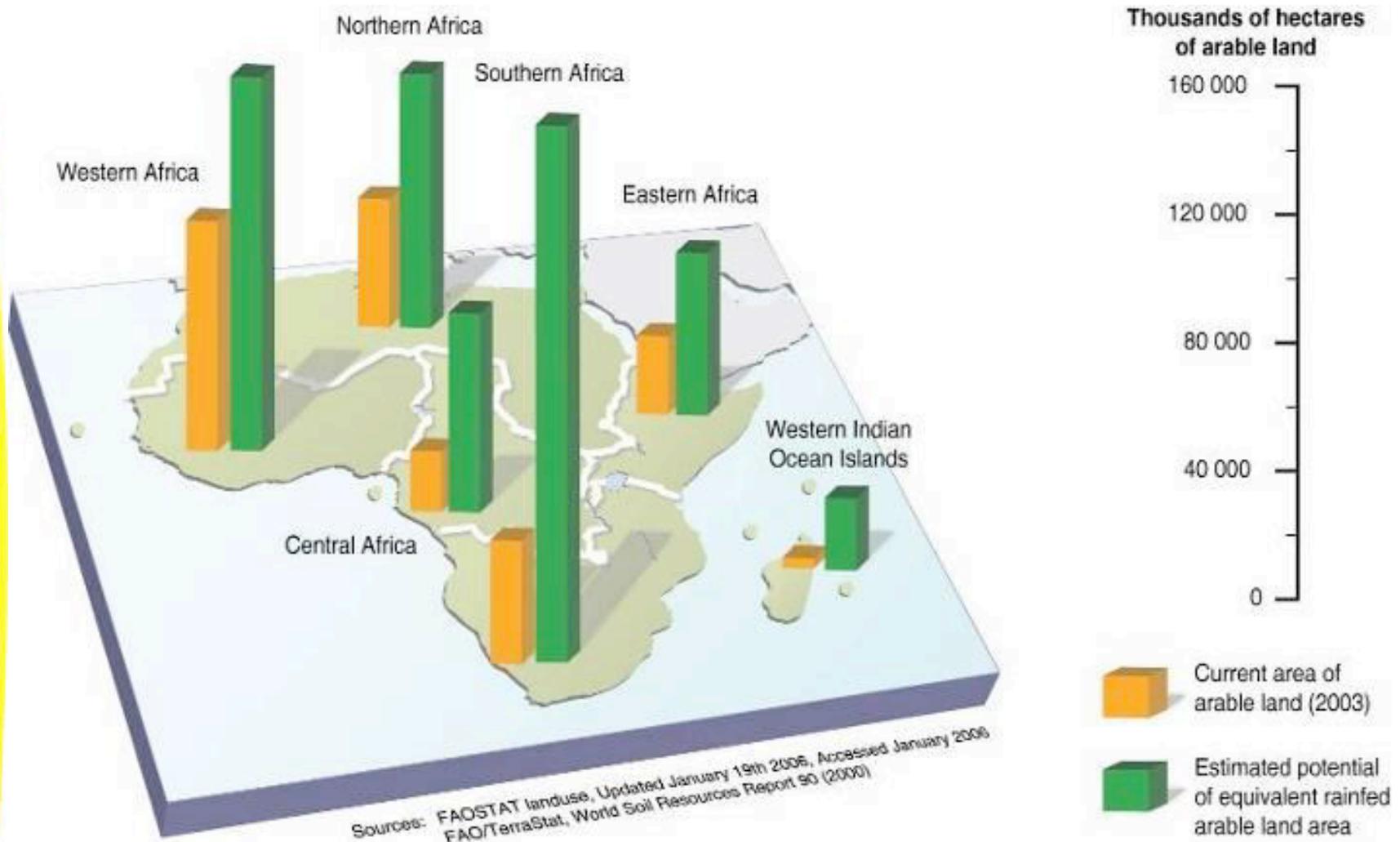


African Opportunities

	Mio Sq Km
USA	9.4
Argentina	2.8
India	3.1
Western Europe	4.9
China	9.6
Total	29.8
African continent	30.3



Potential Arable land Available

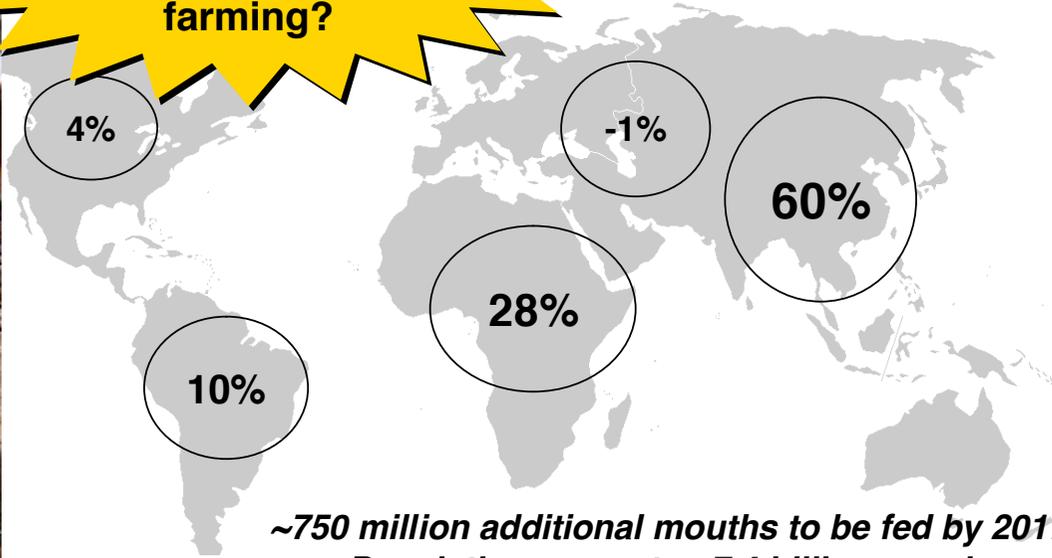
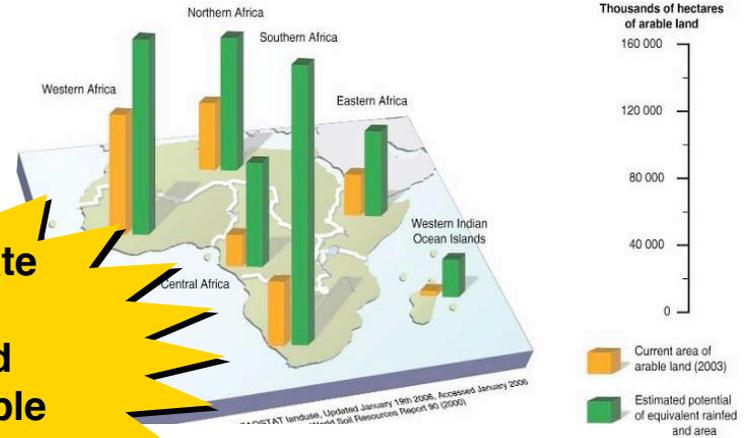


JOHN DEERE

Trends



How do we create productive agriculture and enable sustainable farming?



~750 million additional mouths to be fed by 2017. Population grows to ~7.4 billion people.



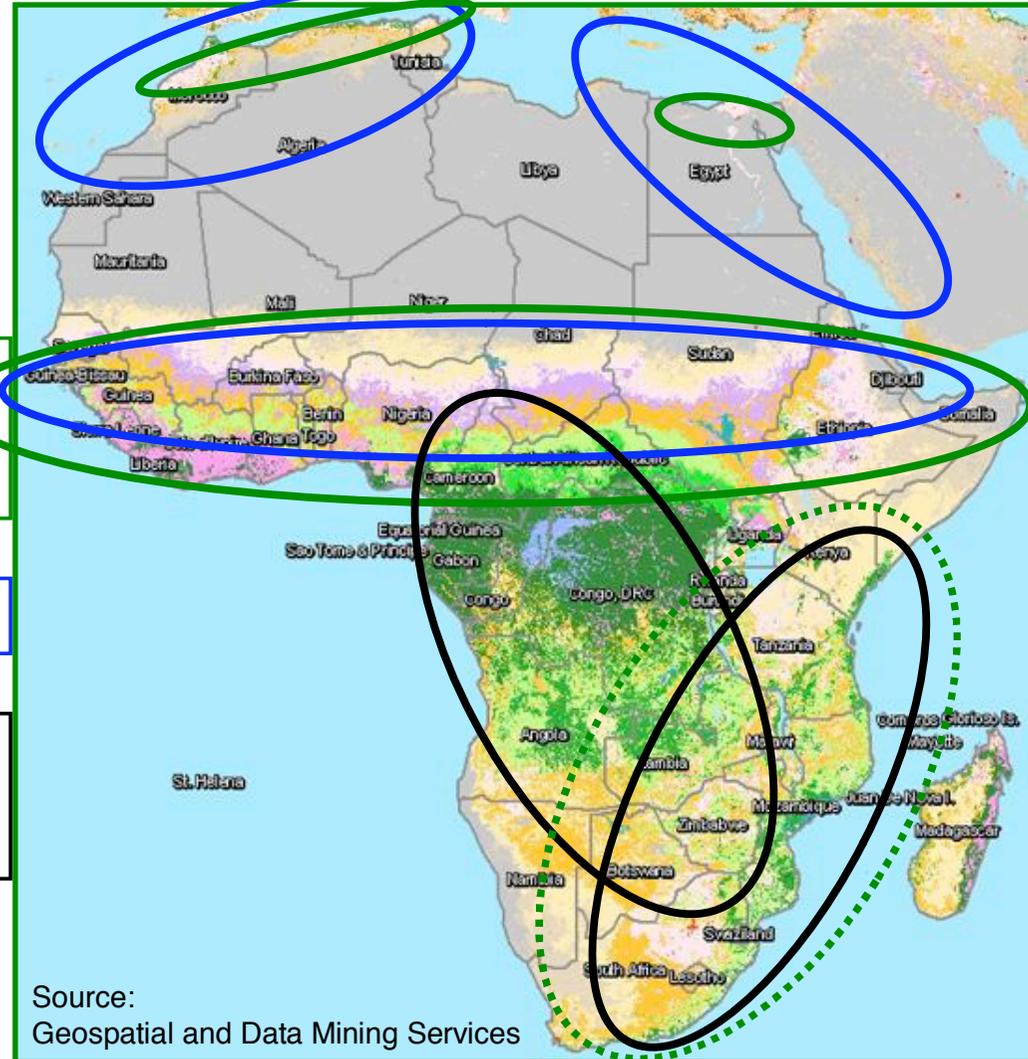
Large Commercial Project Business Solutions

● Ag Solutions

● Irrigation Solutions

● C&F Solutions

- Artificial surfaces and associated areas
- Bare Areas
- Cultivated and managed areas
- Herbaceous Cover, closed-open
- Irrigated Agriculture
- Mosaic: Cropland / Shrub and/or grass cover
- Mosaic: Cropland / Tree Cover / Other natural vegetat
- Mosaic: Tree Cover / Other natural vegetation
- Regularly flooded shrub and/or herbaceous cover
- Shrub Cover, closed-open, deciduous
- Shrub Cover, closed-open, evergreen
- Snow and Ice
- Sparse herbaceous or sparse shrub cover
- Tree Cover, broadleaved, deciduous, closed
- Tree Cover, broadleaved, deciduous, open
- Tree Cover, broadleaved, evergreen
- Tree Cover, burnt
- Tree Cover, mixed leaf type
- Tree Cover, needle-leaved, deciduous
- Tree Cover, needle-leaved, evergreen
- Tree Cover, regularly flooded, fresh water
- Tree Cover, regularly flooded, saline water
- Water Bodies



Commercial Project Business Solutions

- **Agricultural**

- Grain production in highlands of East Africa
- Sorghum and Sugar cane in tropical areas



- **Water Technologies**

- Precision irrigation: i.e. specialty and food crops

- **Construction & Forestry**

- Building road infrastructure key for development
- Business potential for contract projects
- Land clearing and road building



Road construction in Congo



Bright Future for Ag Equipment

- **Expanding Population**
 - 6.5 billion – 8-9 billion
 - 23% growth in 25 years
- **Other Demographic Changes**
 - Increasing incomes
 - Changing diets – a shift to meat
- **Renewable Energy**
 - Farmers a major supplier
 - Driving farm income



Today's Customer Business Challenges



Customer Business Challenges

- **Increase productivity**
- **Cost of equipment, reliability, ease of use**
- **Environmental & legal regulations**
- **Offer price competitive services**



Customer Challenges

Increase productivity of existing machinery gaining cost reduction of inputs at the same time



Customer Challenges

*Reduction of Complexity, Ease of Operation
& Reliability*



Customer Challenges

Complete documentation of all operations and activities in order to

- analysis for doing better business management decisions, and*
- comply with legal requirements*

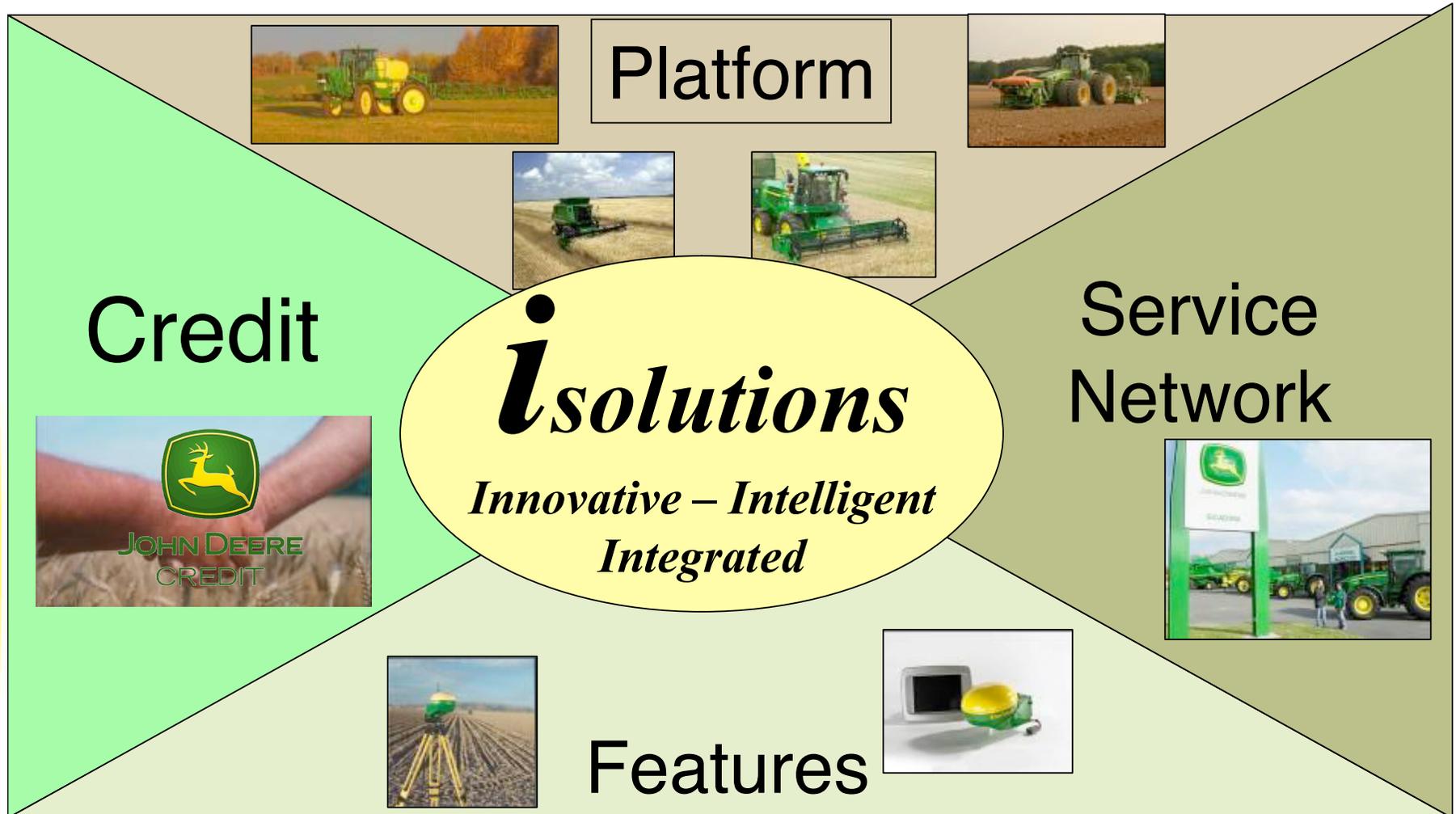


Customer Challenges

Safeguard the investments



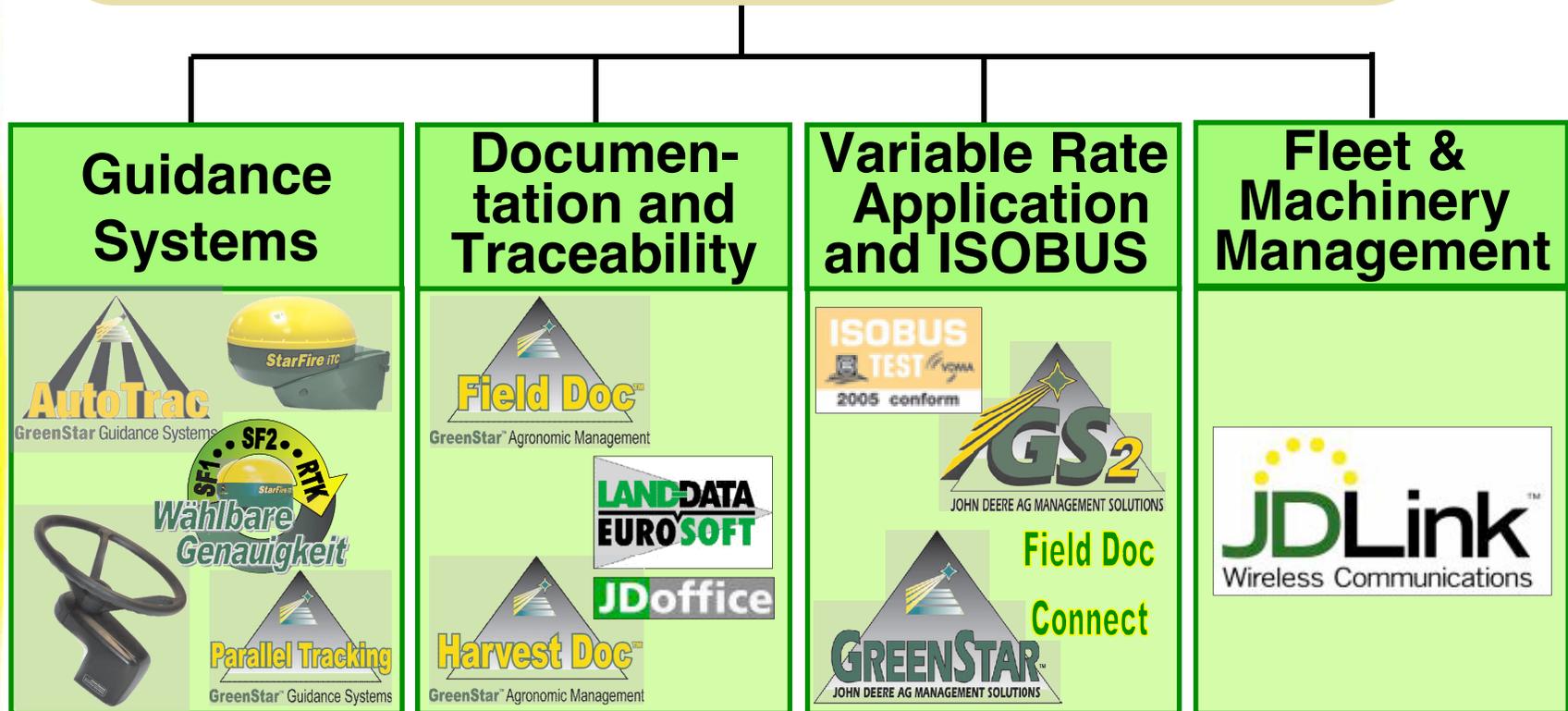
The intelligent Advantage



Ag Management Solutions



The complete Precision Farming System



Why Guidance Systems?

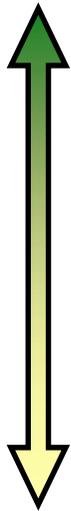


Guidance Applications

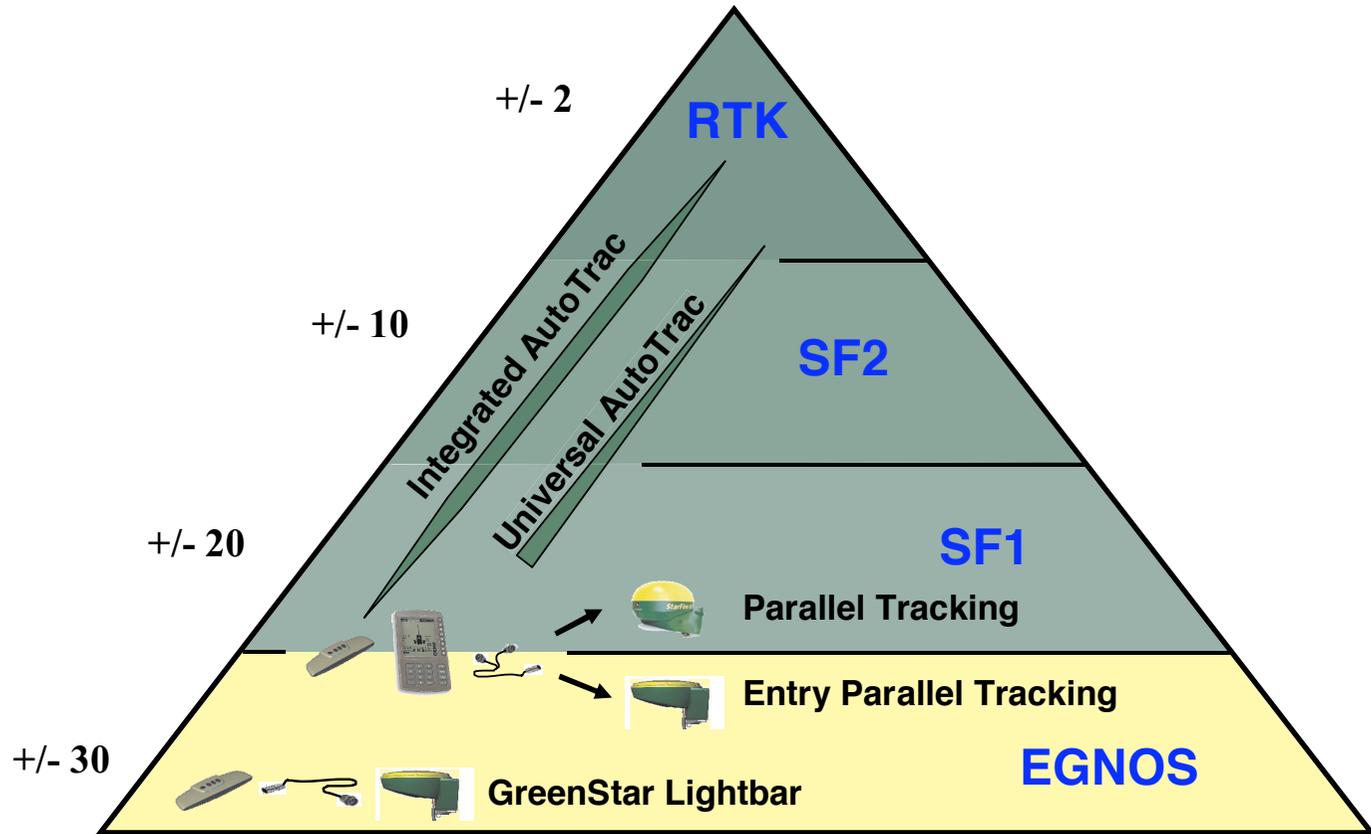


Guidance: Segmentation

High-Spec Solutions

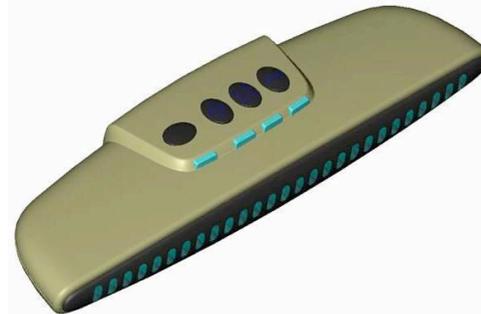


Low-Spec Solutions



GreenStar Lightbar

Lightbar:



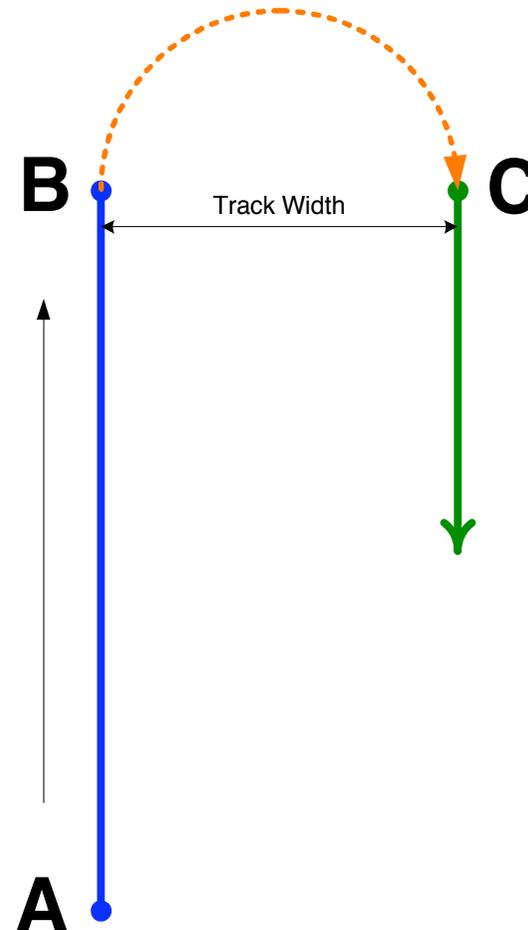
- **easy setup**

Set A => Set B => Set C

- **in scope:**

- Straight Track
- Centre Shift
- Track width adjustment
- Dimming of the LEDs
- On/Off mode

- **naming: „*GreenStar Lightbar*“**



Universal Guidance



See www.stellarsupport.com for available platforms



Customer Benefits of Guidance



Customer Benefits of Guidance

- **Less overlap (up to 90%) higher productivity resulting in cost savings (Fuel, seed, fertilizer, etc)**
- **Exact tramline while seeding**
- **Focus on application (work quality)**
- **Highest driver comfort and manpower (less skilled) utilization**
- **Modular system - extendable with documentation and variable applications**



Customer Value

i-Farming Scenario 200ha Mixed Farm

200ha mixed farming

- 100ha wheat
- 50ha rape/canola
- 50ha barley

Livestock

- 1000 fattening pigs

Machinery equipment

- 1x W540i, 6,10m
- 1x 7730, 190hp
- 1x 6430P, 129hp
- 1x Power harrow, 4m
- 1x Chisel plow with packer, deep tillage, 4,5m
- 1x Seeder, 3m
- 1x 832i, 24m
- 1x Fertilizer spreader, ISOBUS Ready 24m
- 1x Slurry Tanker, 12m³, injection system



***i*-Farming Scenario 200ha Mixed Farm**

Used *i*-Features

W540i	AutoTrac, HarvestSmart, HarvestDoc
7730	AutoTrac, iTecPro, ISOBUS, JDLink, FieldDoc
6430 Premium	AutoTrac, ISOBUS, FieldDoc, JDLink
Seeder	AutoTrac, FieldDoc Connect, ISOBUS
Sprayer 832i	Sprayer Pro, BoomTrac, ISOBUS
Fertilizer Spreader	AutoTrac, FieldDoc Connect, ISOBUS



i-Farming Scenario 200ha Mixed Farm

Monetary cost benefit over the course of the year

	Operation cost w/o labor*	Advantage <i>i</i> -Solutions		Savings		ha	Total	
		%**	Cost	€/ha	Labor €/ha			
200 ha	General							
	Lime stone spreading	43,10 €	10%	Operation and lime	7,38	0,30	66,7	511,9 €
	Slurry disposal	47,07 €	10%	Operation	4,71	1,38	133	405,8 €
	Stubble breaking	43,10 €	9,7%	Operation	4,18	1,92	200	1220,3 €
	Tillage	37,89 €	10,7%	Operation	4,05	1,70	200	1151,1 €
	Management							
	Documentation		5,5%	Labor		8,25	200	1650,0 €
			5%	Documentation				
	Canola / rape							
	Seeding	105,42 €	2,2%	Operation and seed	2,32	0,56	50	144,0 €
	Crop care	166,52 €	2,2%	Operation and chemicals	3,66	0,29		197,7 €
	Fertilizer	116,20 €	2,2%	Operation and fertilizer	2,56	0,28		127,8 €
	Combining	100,10 €	16,2%	Operation	16,22	3,79		1000,4 €
	Small Grains							
	Seeding	107,38 €	2,2%	Operation and seed	2,36	0,57	150	354,4 €
	Crop care	175,39 €	2,2%	Operation and chemicals	3,66	0,29		593,1 €
Fertilizer	173,14 €	2,2%	Operation and fertilizer	3,63	0,34	595,5 €		
Combining	99,65 €	16,2%	Operation	16,14	3,89	3004,7 €		
				<i>i</i>-Solutions Advantage			10956 €	

Source:

* Cost acc. to KTBL, Germany

** Universtiy of Halle and Munich, Magazines: Profi, Landtechnik, Loonbedrijf, 2006

Next Steps...

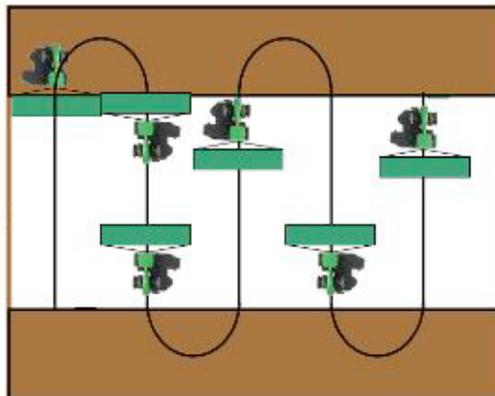


- ***iTEC Pro (intelligent Total Equipment Control)***
 - AutoTrac + Headland-Management-System IMS



iTEC Pro – Automation

- Intelligent Total Equipment Control (iTEC Pro) links (AutoTrac) with the headland management system (IMS)
- Tractors with iTEC Pro turn fully automatically at the headland
- The system controls tractor speed & transmission, 3-point hitch (front & rear), PTO, hydraulic control valves , 4 wheel drive and diff lock



Sprayer Pro – GPS triggered on/off



Summary

- *GNSS guidance systems* have proven itself in practical work → Customer benefit and value can be demonstrated.
- The *customer acceptance* of guidance systems applications accelerate precision farming activities
- Integrated solution comprising guidance, documentation, fleet & machinery management are vital for customer success
- *GNSS guidance systems* lay the ground for new levels of automation in Ag moving towards autonomous application

Vielen Dank!



