



***Advancing for a
better tomorrow***

2019 SOUTH EAST ASIA SUGARCANE SUMMIT

JULY 7-10, 2019 | KHAO YAI, THAILAND

75 **AUSTOFT**
years

CASE IH
AGRICULTURE



***Advancing for a
better tomorrow***

Case IH AFS Solutions for Sugarcane

Matthew J. McDonald

75 **AUSTOFT**
years

CASE IH
AGRICULTURE

**ADVANCED
FARMING SYSTEM**

Case IH AFS

Solutions for Sugarcane

The Facts and The Figures...

Water Management

- Improve yield by 20 - 30% over conventional leveling technology
- Improve up to 50% on newly leveled fields
- Conserve water for flood irrigation
- Reduces chemical runoff
- Topsoil management
- 24 hour operation



Application Control



Manual vs Auto 3 Section = 75% reduced Overlap

140 Acres Crop Plot

7 Boom Sections

Over-Application = 7.4 acres (5.2%)

36 Boom Sections

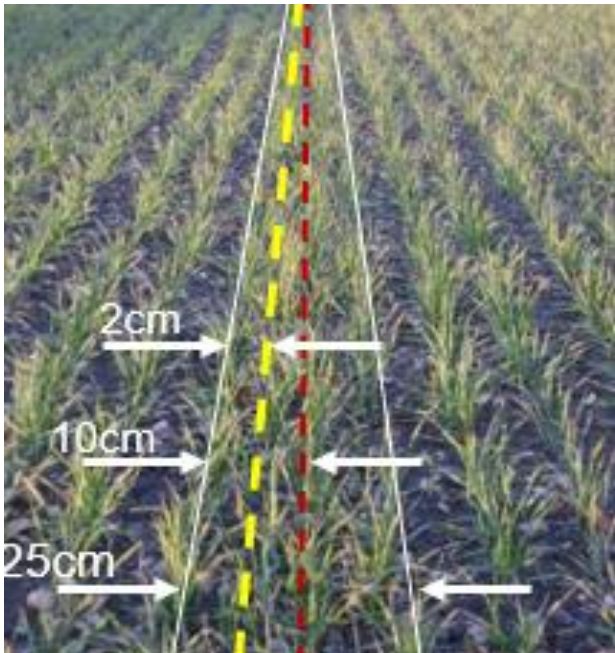
Over-Application = 1.4 acres (.99%)

72 sections (nozzle by nozzle):

Over-Application = .4 acres (.2%)

SLIDE 4

GNSS Guidance



	Manual No guidance	Medium RTX 10cm +/- 5cm	RTK +/- 2cm
Effective drill width m	5.75	5.9	5.98
Effective mlines m	23	23.6	23.92
Overlap %	4	1.6	0.33

What is AFS?

Advanced Farming Systems



Case IH - Our Vision



Precision

Leading Control Solutions

Digital

Transforming Your Fields Into Data

Connected

Staying Informed and in Control Every Step of the Way

Precision, Digital and Connected Solutions



For all stages of your crop cycle

Sugarcane Cycle

Harvest

- Auto Guidance
- Yield & Moisture Monitoring
- Telematics – Data & Tracking
- Data Visualisation
- Productivity Analysis
- Decision Making

AFS



Prepare

- Pre-Season Data Analysis
- Nutrient Maps for Planting
- Land Forming – Water management

AFS



Treat

- Variable Rate Maps
- Section Control
- Telematics – Data & Tracking
- Auto Guidance
- Controlled Traffic Farming

AFS



Plant

- Auto Guidance
- Controlled Traffic Farming
- Variable Rate Maps
- Telematics – Data & Tracking

AFS



Why AFS?

Advanced Farming Systems



Why AFS?

**...Increase
Production**

***“World population projected
to reach 9.8 billion in 2050”***

(UN Department of Economic and Social Affairs)

...Higher Demand

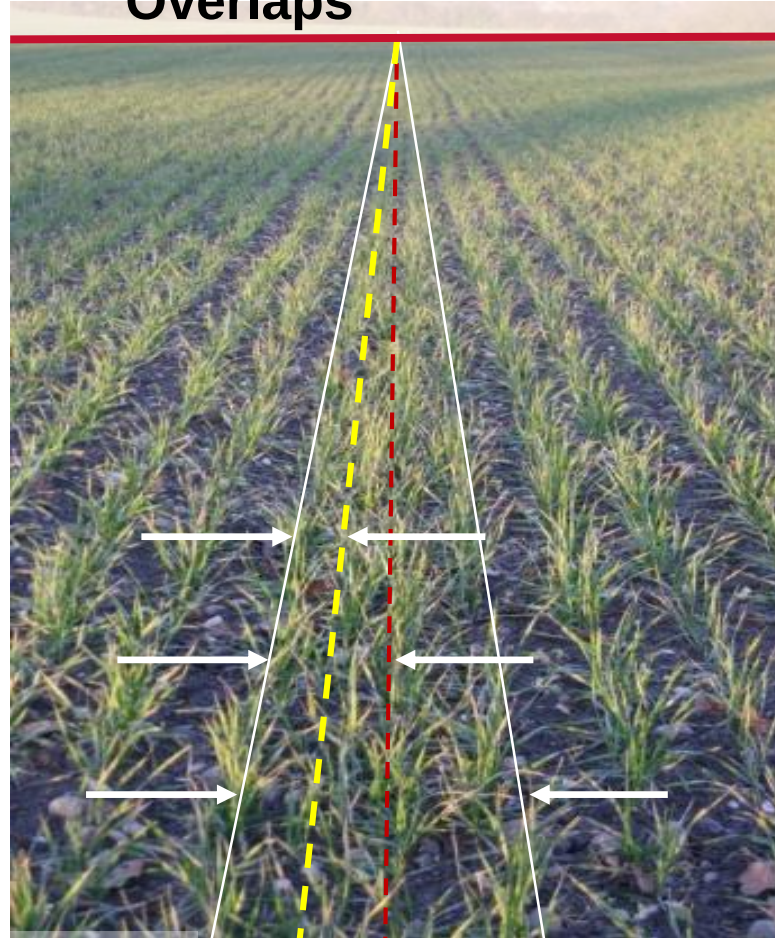
Current Global Population – 7.7 Billion

Why AFS?



- ...even with curved rows!

- Reduced Skips and Overlaps



- More planted areas in same area with centimetre perfect parallel planting

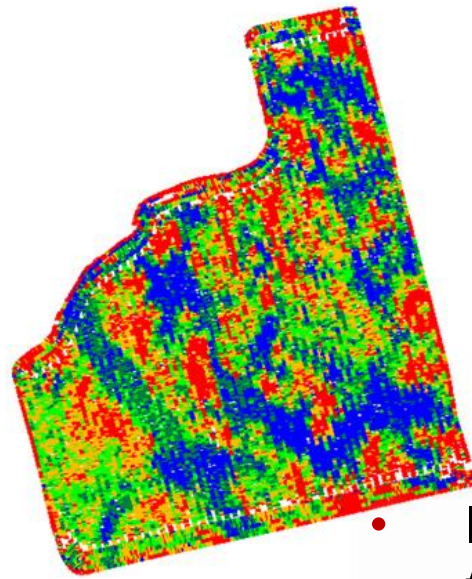


...Financial Advantage

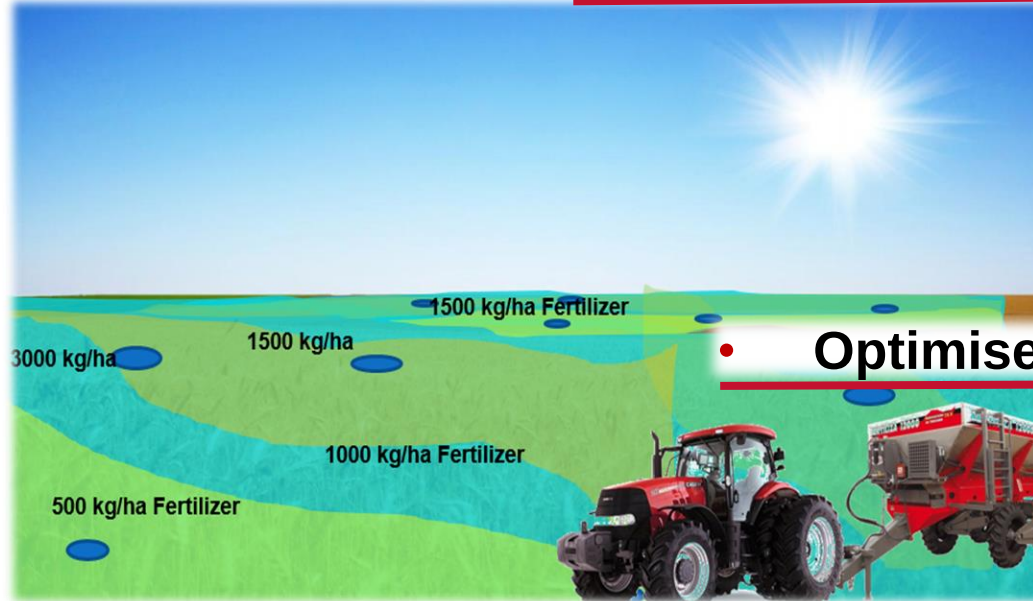
...Increased Efficiency

Why AFS?

...Precise
Field Layout



- Individually treat plants and crops according to condition.



- Optimise Planted Areas



...Minimize
Input Cost

Why AFS?

...Controlled Traffic Farming



- Reduce soil compaction and plant trampling



- Inter-Row Weed Control



...Improved Productivity

Why AFS?

...Ergonomics



- **Flexibility of Labour/ Skill**



- **Reduced Operator Stress and Fatigue**



- **Day or Night Operator Efficiency**

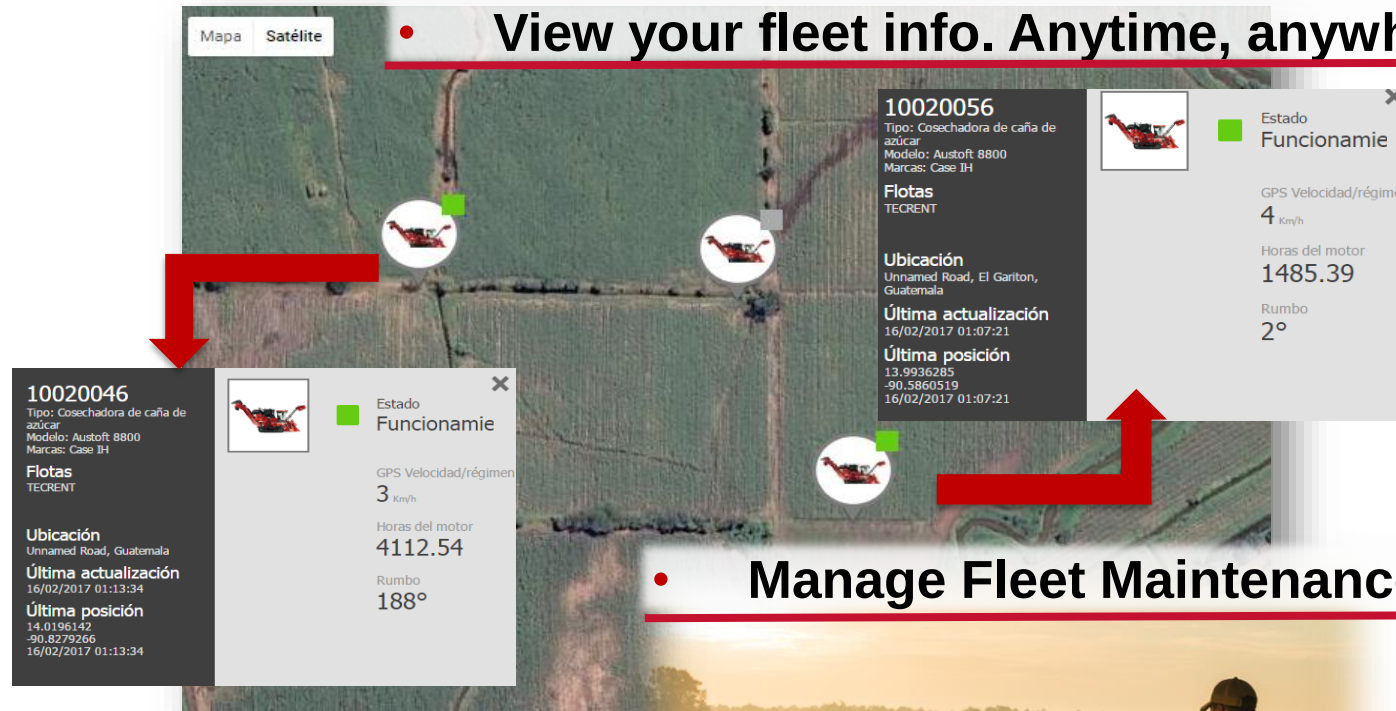
...Improved Operator Efficiency

Why AFS?

...Operation
Management



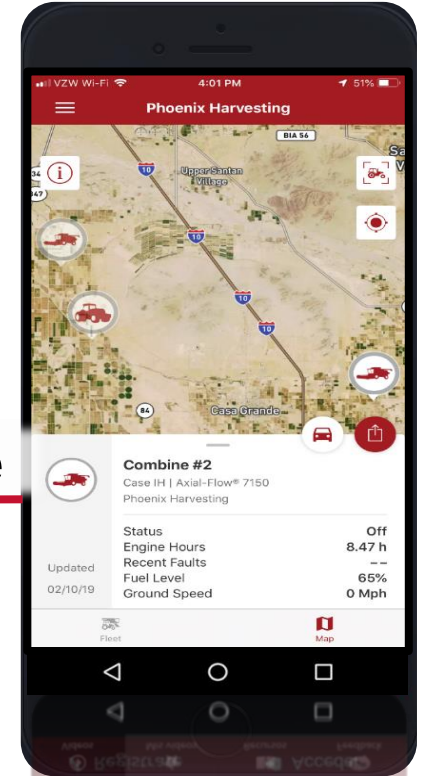
- View your fleet info. Anytime, anywhere.



- Manage Fleet Maintenance

- Review Operator and Equipment Utilisation

...Improved Fleet and Logistic Control



Why AFS?

A Proven Return of Investment all Over the World

Advanced Farming Systems

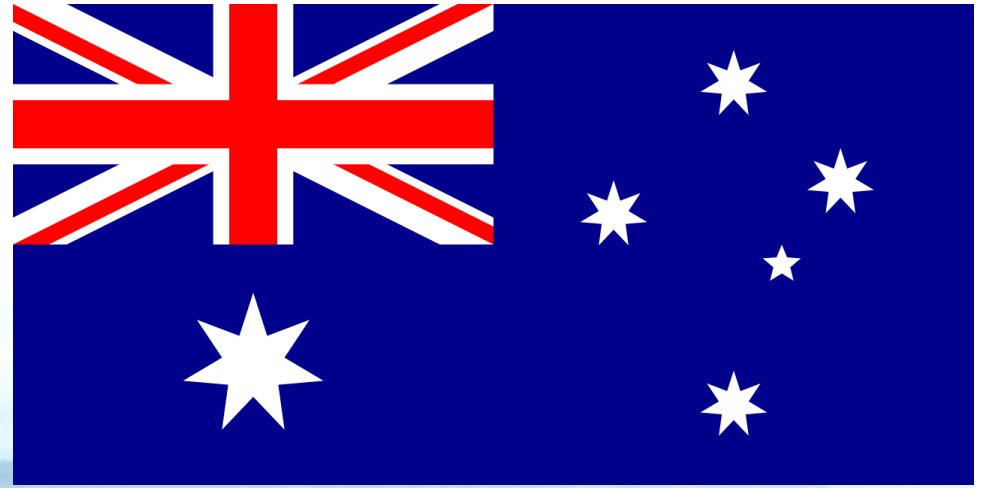


Brazil

- Highly Advanced Market
- Controlled Traffic Farming
- Utilising Precision Control Solutions for a decade
- Multiswath Guidance lines to adapt to local terrain
- Advancing to 'Mesh Networks' to overcome connectivity issues



Australia



South Africa



Common Problems in Today's Sugarcane Operations

Advanced Farming Systems



Problem: Not so 'Straight' Planted Crops



Impact:

- ✗ Loss of valuable planting area
- ✗ Increase trampling of crops
- ✗ Unable to treat or harvest with Guidance
- ✗ Skips and overlaps
- ✗ Additional fuel Usage

Resolution:

- ✓ Auto Guidance.

Problem: Poor Water Control



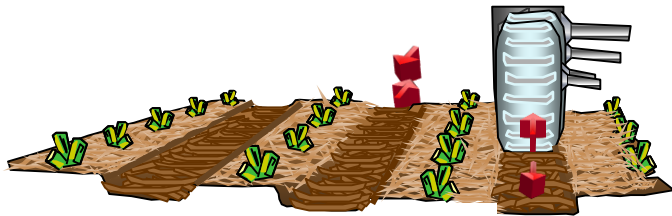
Impact:

- ✗ Crop damage
- ✗ Decreased Yield
- ✗ 'Puddling' in field

Resolution:

- ✓ Land Form - Field Level
 - ✓ Keep water when it is scarce
 - ✓ Drain water when it is abundant

Problem: Extensive Soil Compaction



Impact:

- ✗ Low Yield
- ✗ Natural soil structures damaged
- ✗ Poor water drainage

Resolution:

- ✓ Controlled Traffic Farming

Problem: Unable to Efficiently Track Fleets



Impact:

- ✗ Inefficient logistic management
- ✗ Machine Downtime
 - ✗ No Fuel
 - ✗ No Haul Machine
 - ✗ Untimely Servicing
- ✗ Queue to unload at Sugar Mill
- ✗ Stolen Machines/ Fuel

Resolution:

- ✓ Telematics

Problem: Operators Lack Experience/ Skill



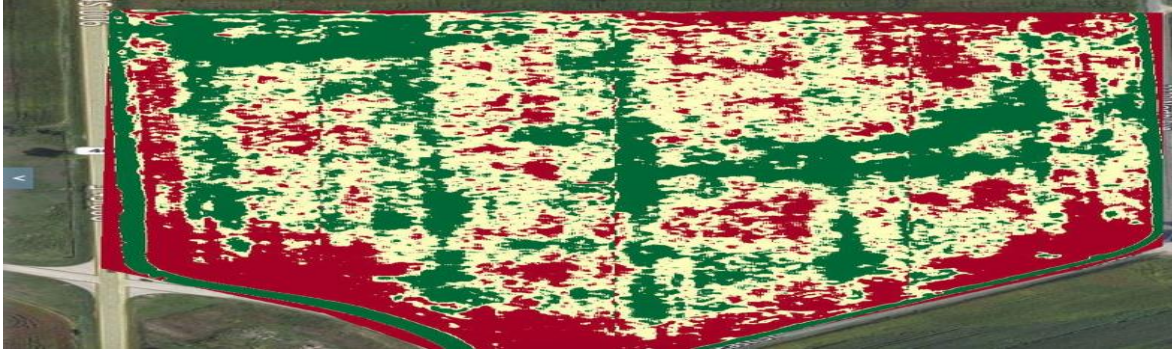
Impact:

- ✗ Costly machine damage
- ✗ Inexperience related mistakes
- ✗ Incorrect operation of equipment
Machines
- ✗ Lack of efficiency when it counts
- ✗ Costly long term effects of poor planting.

Resolution:

- ✓ Telematics
- ✓ Auto Guidance
- ✓ Application Control

Problem: Low Yielding Areas of Sugarcane



Impact:

- ✗ Lower overall yield
- ✗ Excess Fertiliser Over applying inputs

Resolution:

- ✓ Application Control
- ✓ Data Analytics

So, Where Do I Start?

Advanced Farming Systems



2-Phase Process to Achieve Systemization in Your Sugarcane Operation...

Sugarcane Systemization Process

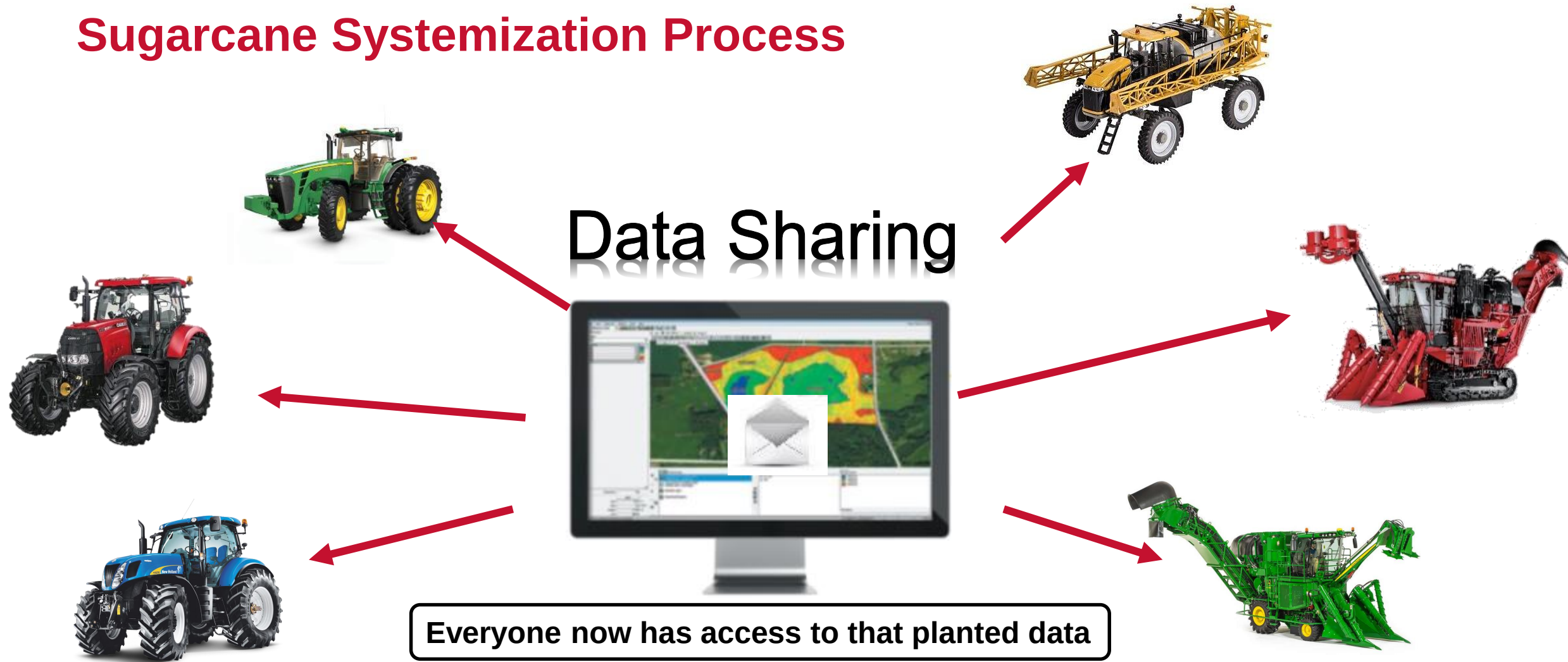


Phase 1: Plant

Planting Sugarcane with AFS Guidance is your efficiency foundation.

1. Install AFS guidance system to your machine.
2. Record passes as you plant your field.
 1. ...Or ridging field first.
3. Share recorded passes with other machines.
4. Spray and Harvest crop with same passes, gathering more data as you do so.

Sugarcane Systemization Process



Sugarcane Systemization Process



Phase 2: Harvest

Having planted with Guidance, you are now able to Harvest the crop using the same lines.

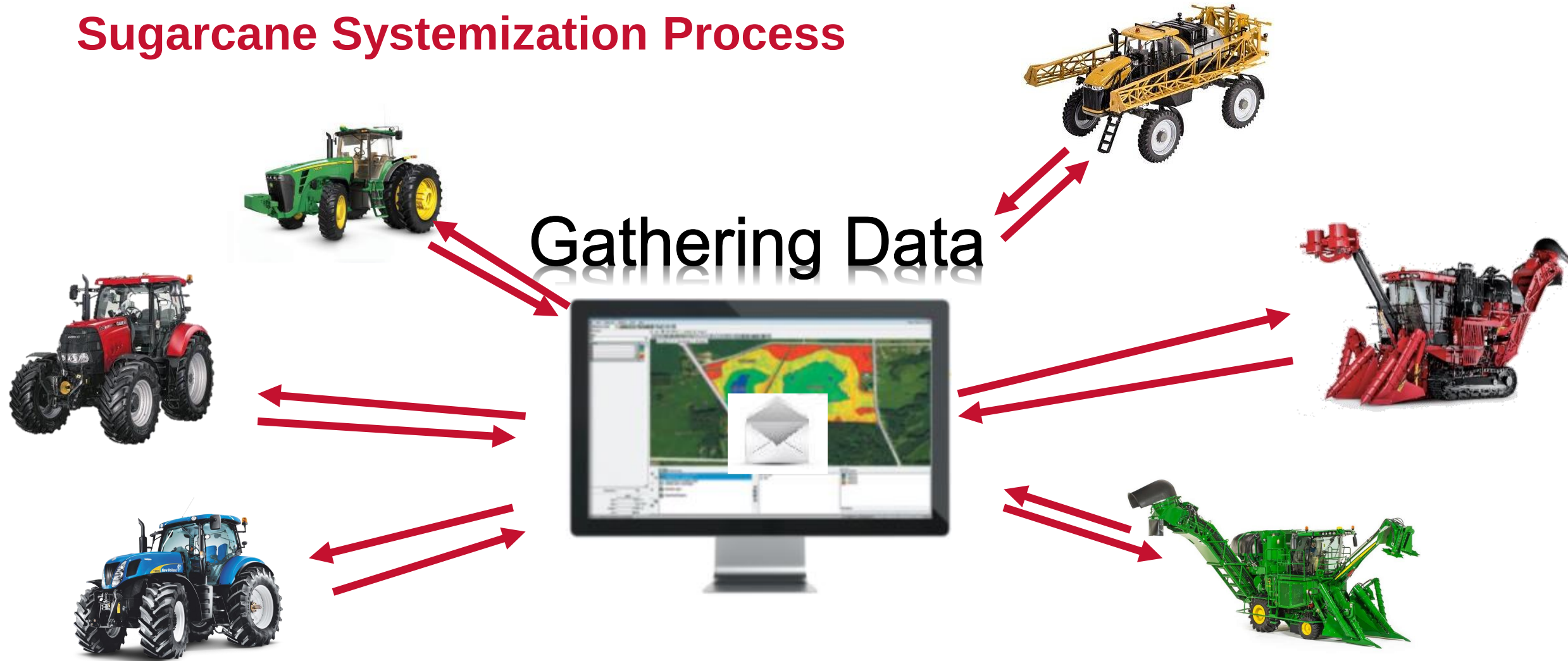
1. Install AFS guidance system to your Harvester.
2. Operator can concentrate on other Harvester functions as the machine steers automatically down each row
3. As you Harvest, gather valuable geo-spatial information about your crop

Sugarcane Systemization Process

The Next Steps...



Sugarcane Systemization Process



What Do I Need?

Advanced Farming Systems





Precision Guidance Solutions

What Do I Need?

Guidance Solutions For all Makes and Models of Machines

Solutions From Factory

AFS

AccuGuide



IntelliSteer



What Do I Need?

Guidance Solutions For all Makes and Models of Machines

After-Market Solutions

COLOURBLIND



What Do I Need?

Guidance Solutions For all Makes and Models of Machines

After-Market Solutions

COLOURBLIND

- Allows for any mixed fleet to have compatible guidance solutions
- Choice of Displays and steering systems to fit your needs
- Machine transferable
- 1-2cm Accuracy

Factory Fit

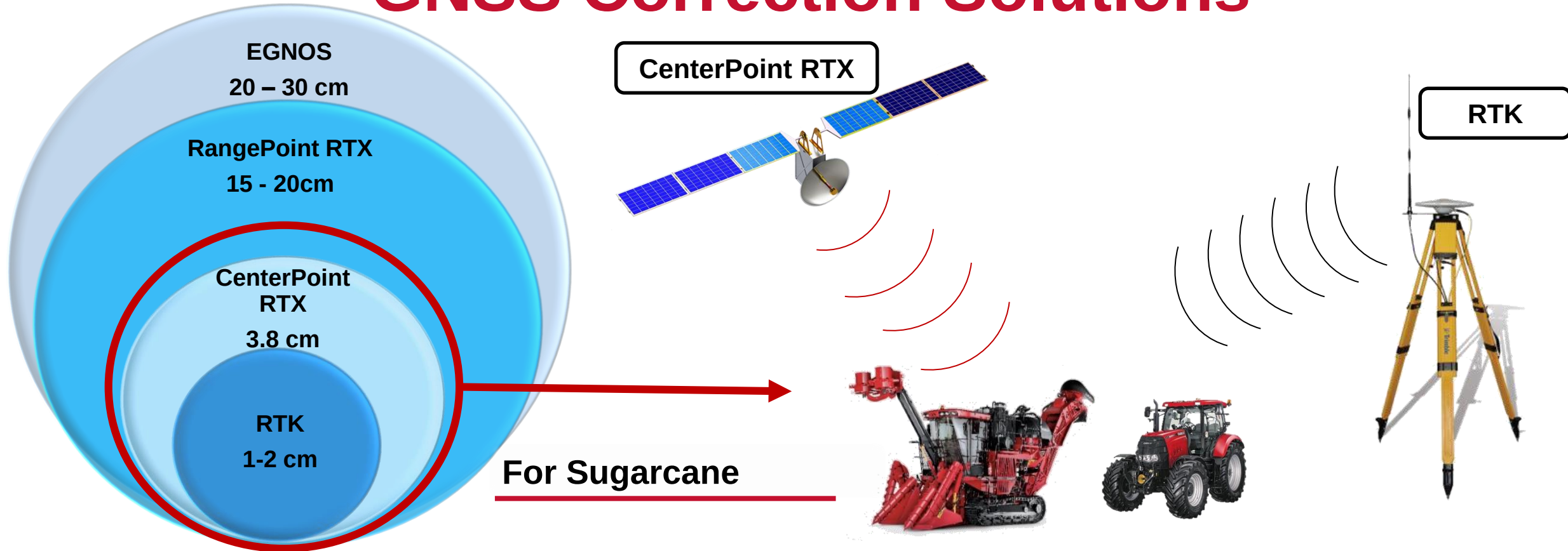


- More price competitive
- Integrated into machine, not added on.
- No installation cost or time required
- Compatible with After-Market solutions
- 1-2cm accuracy

What Do I Need?

Guidance Solutions For all Makes and Models of Machines

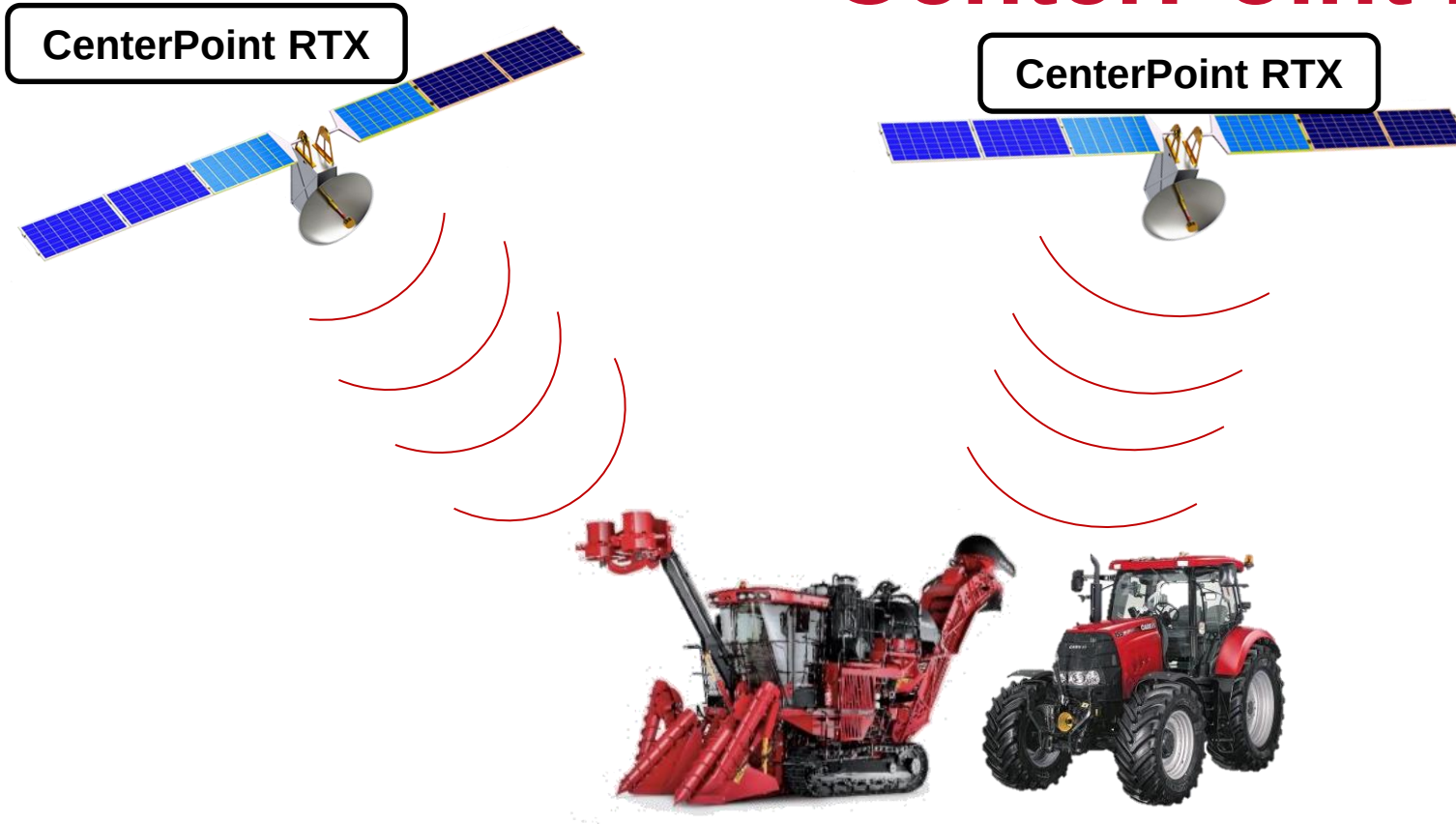
GNSS Correction Solutions



What Do I Need?

Guidance Solutions For all Makes and Models of Machines

CenterPoint RTX



Summary

- Satellite Based Correction Service
- 3.8cm Accuracy
- Repeatable Accuracy
- Subscription Required
- Good or smaller scale operations

What Do I Need?

Guidance Solutions For all Makes and Models of Machines

RTK – Real-Time Kinematic

Summary

- Ground Based Correction Service
- 1 – 2 cm Accuracy
- Repeatable Accuracy
- No ongoing Subscription Required
- 15 Km Range of Base Station
- Join multiple Base Stations for Additional coverage
- Unlimited amount of users



Connected Solutions

What Do I Need?

Connected Solutions for Your CNH Machines

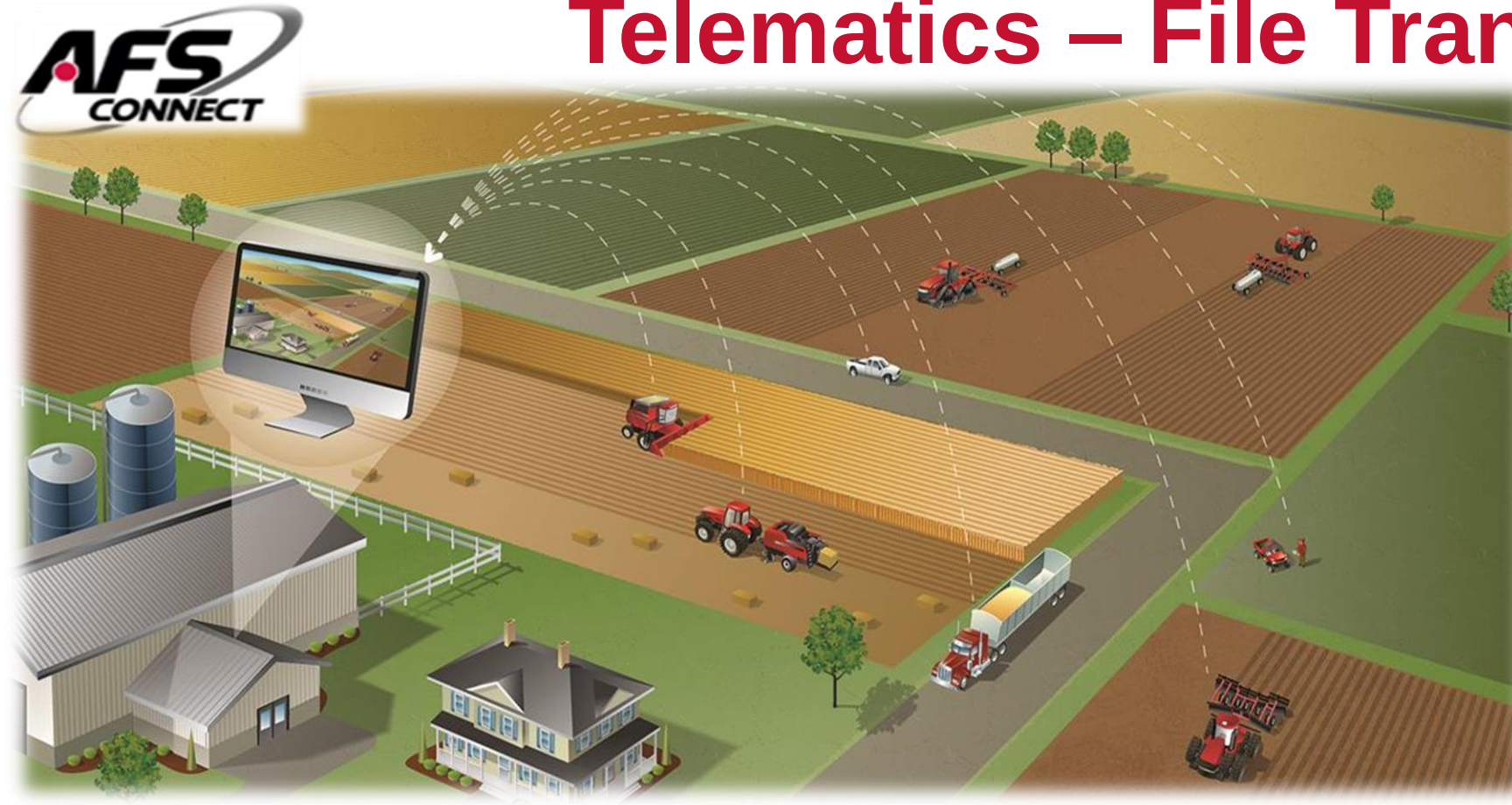
Telematics - Explained



What Do I Need?

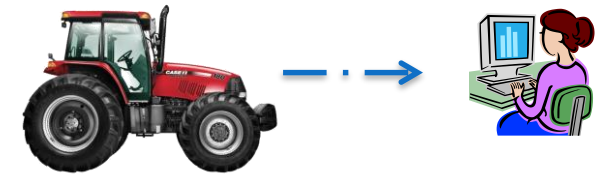
Connected Solutions for Your CNH Machines

Telematics – File Transfer

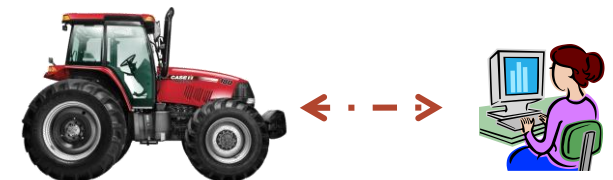


Functionality

One Way



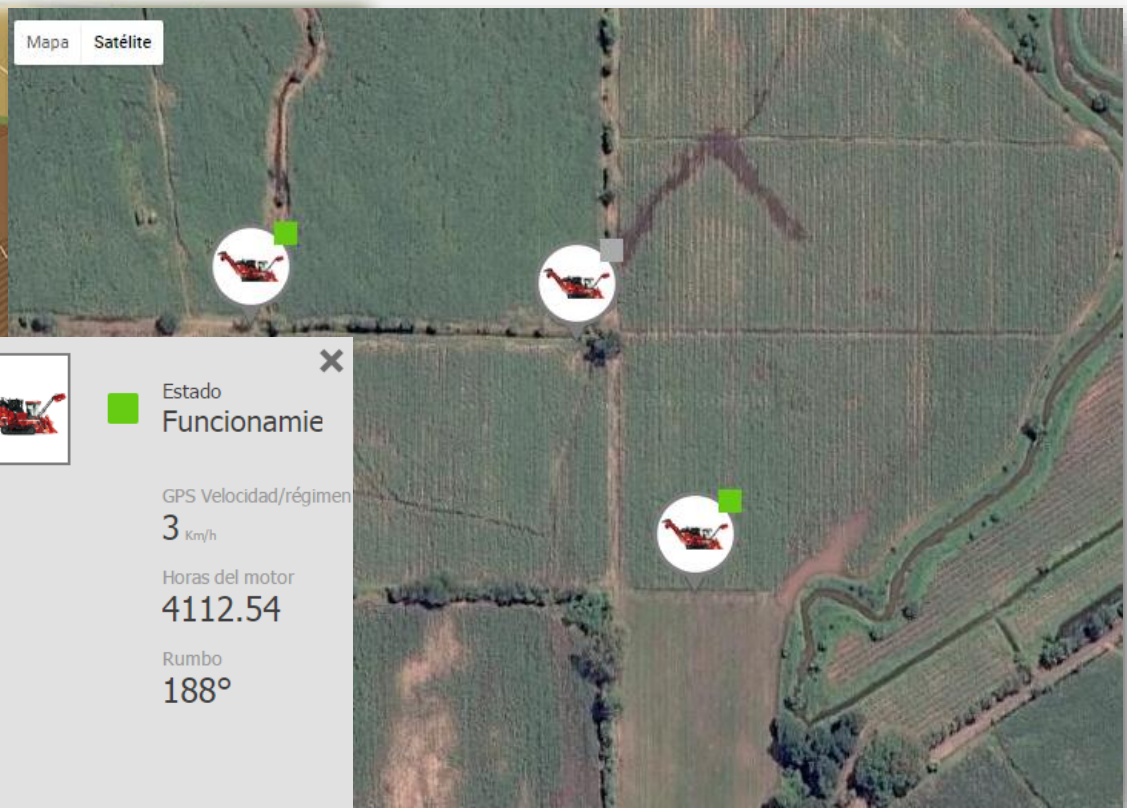
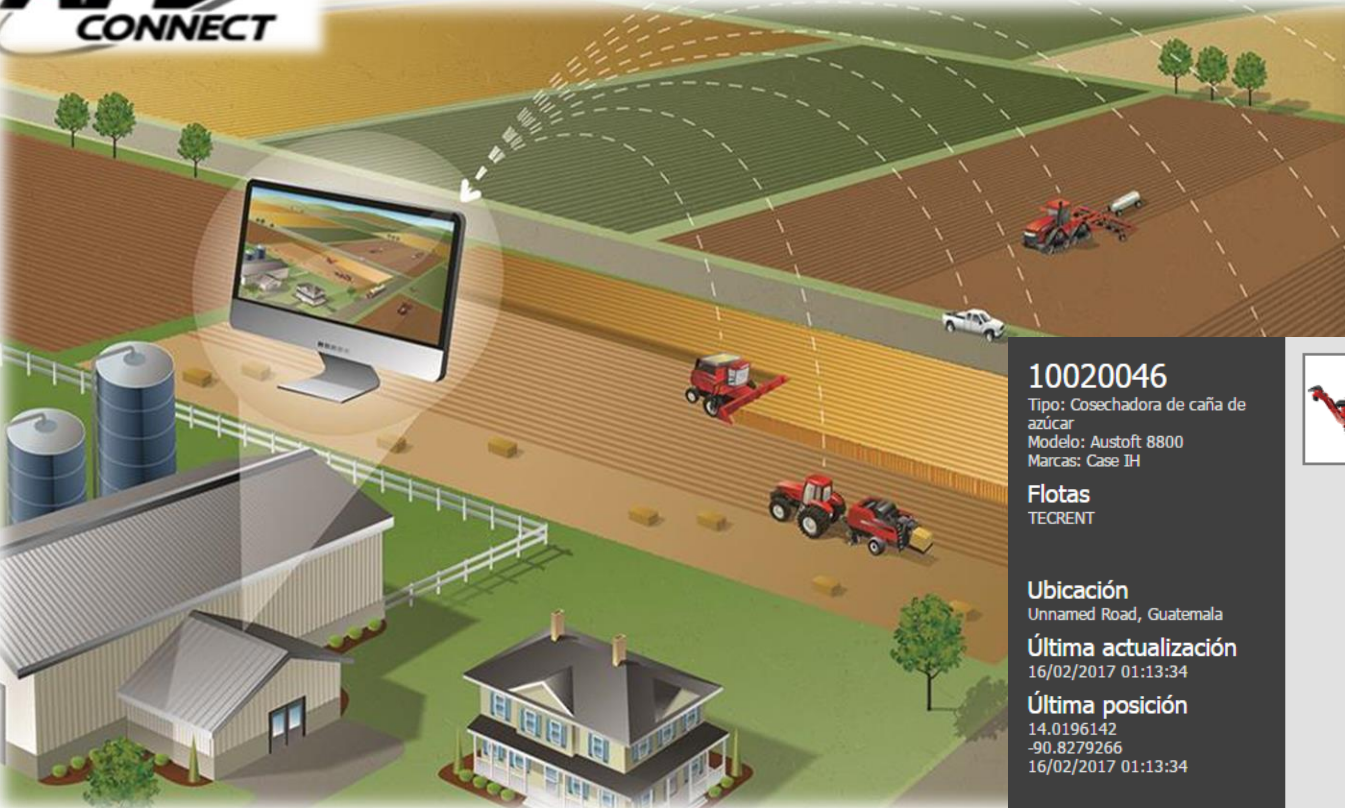
Two Way



What Do I Need?

Connected Solutions for Your CNH Machines

Telematics – Location & Status



10020046
Tipo: Cosechadora de caña de azúcar
Modelo: Austoft 8800
Marcas: Case IH

Flotas
TECRENT

Ubicación
Unnamed Road, Guatemala

Última actualización
16/02/2017 01:13:34

Última posición
14.0196142
-90.8279266
16/02/2017 01:13:34

Estado
Funcionamiento

GPS Velocidad/régimen
3 Km/h

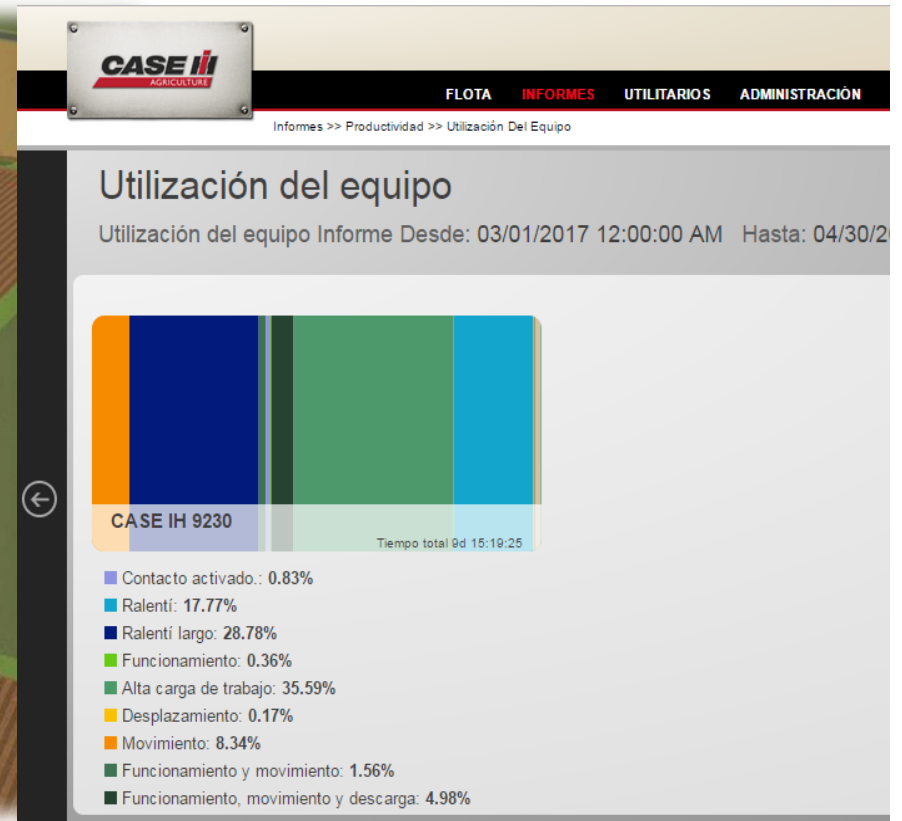
Horas del motor
4112.54

Rumbo
188°

What Do I Need?

Connected Solutions for Your CNH Machines

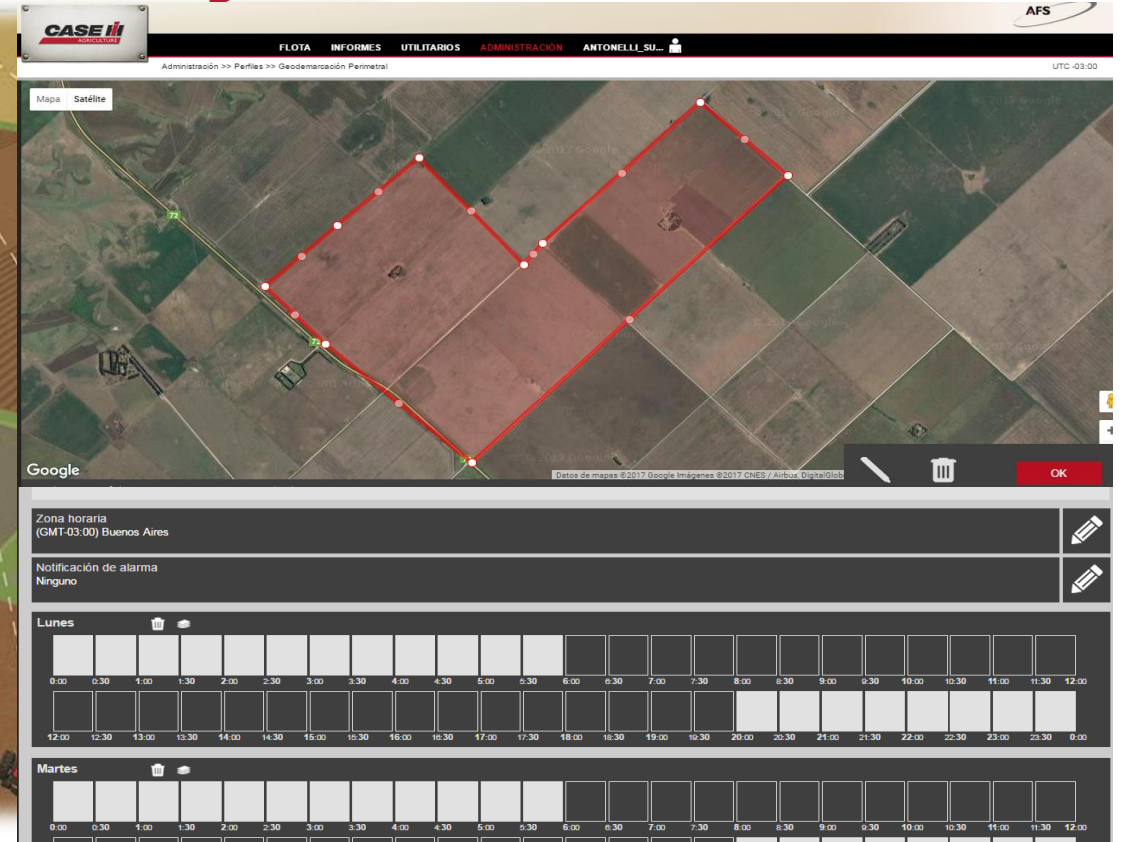
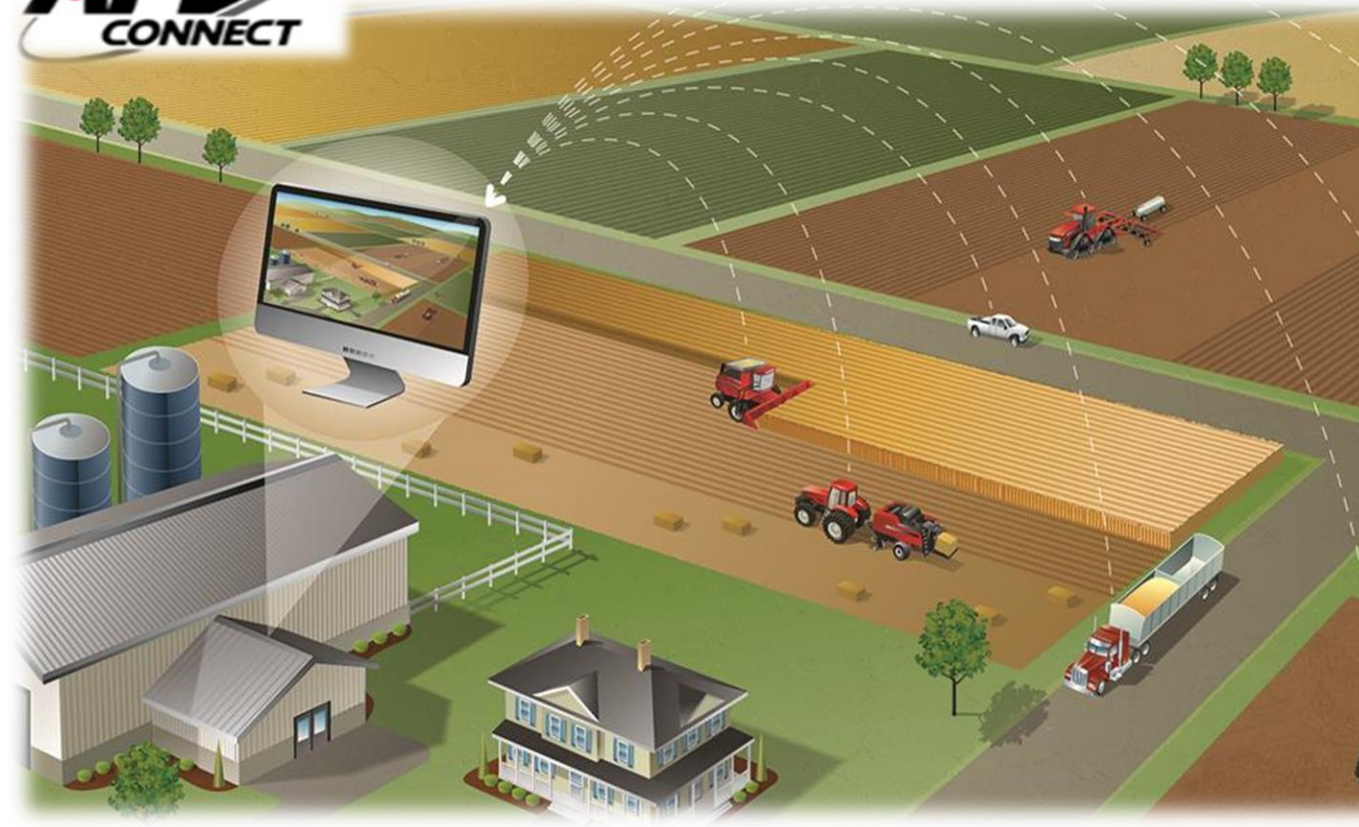
Telematics – Utilization



What Do I Need?

Connected Solutions for Your CNH Machines

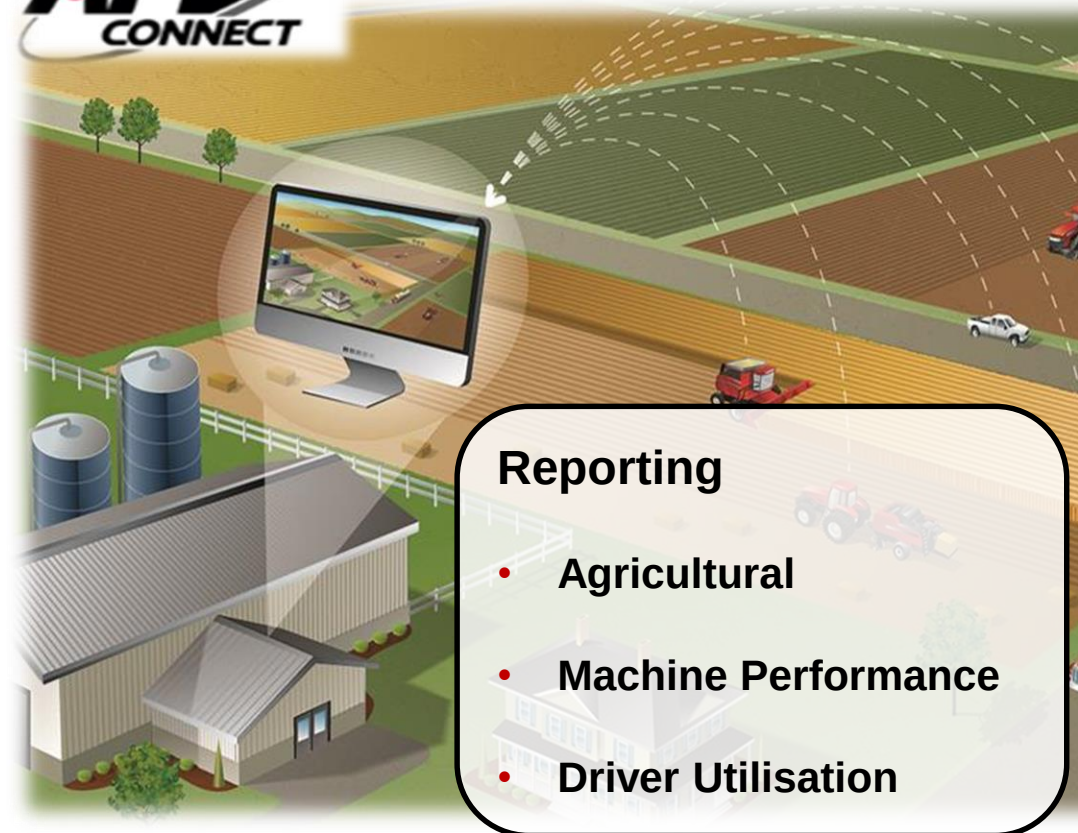
Telematics – Security & Alerts



What Do I Need?

Connected Solutions for Your CNH Machines

Telematics – Reporting



Reporting

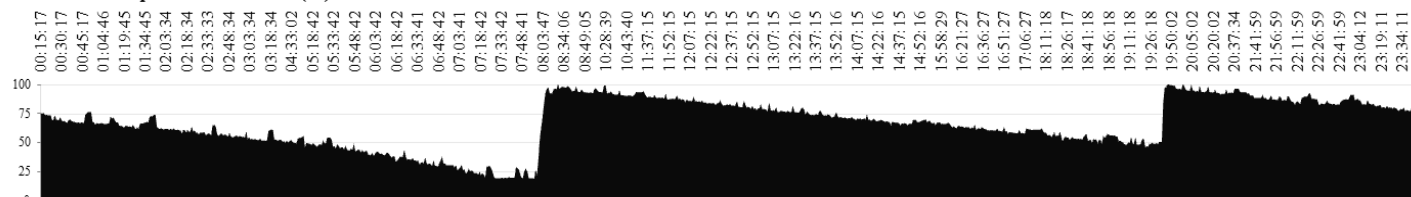
- Agricultural
- Machine Performance
- Driver Utilisation



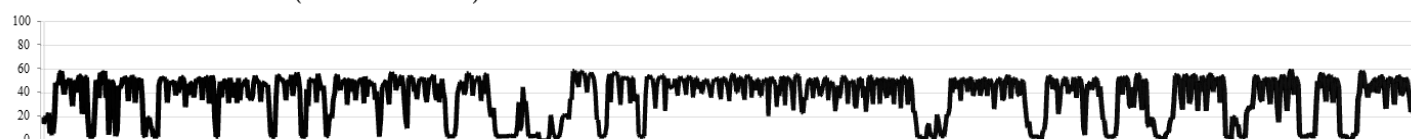
SCH DAILY REPORT



Nivel del tanque de combustible (%)



Nivel de combustible del motor (litros/hora del motor)



Temperatura del refrigerante del motor (deg C)



What Do I Need?

Connected Solutions for Your CNH Machines

Telematics – Summary



- Factory Fit Options available – for competitive pricing
- Compatible with all CNH platforms – Tractor, Harvester, Sprayer
- Available to fit to legacy CNH Machines
- Allows data transfer between after-market solutions
- Control your Sugar operation Data centrally.



Data Solutions

What Do I Do With the Data?

Advanced Farming Systems



What Do I Need?

Connected Solutions for Your CNH Machines

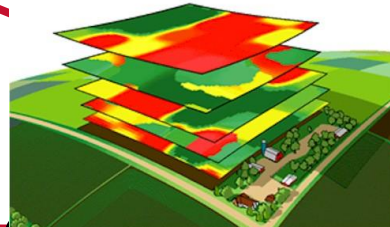


Data



3

1



Data
Recorded and
Collected

2



Processed

Controlled
and Informed
Output



What Do I Need?

Connected Solutions for Your CNH Machines



Data – Record and Collect

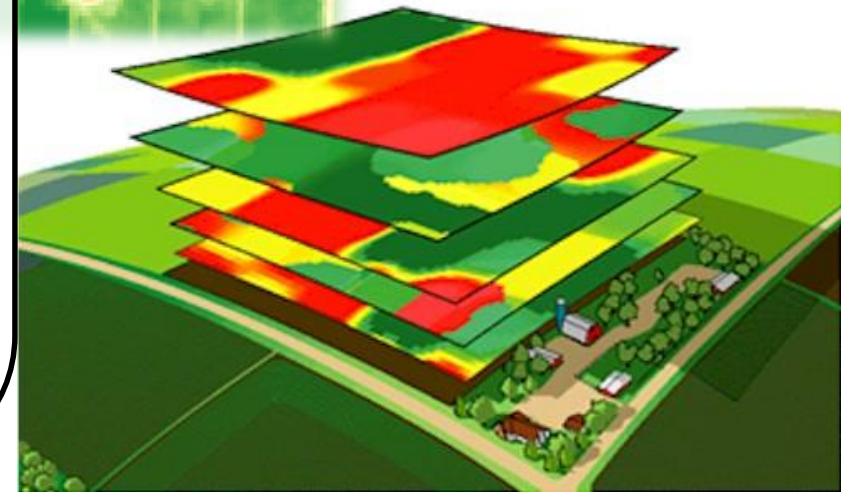
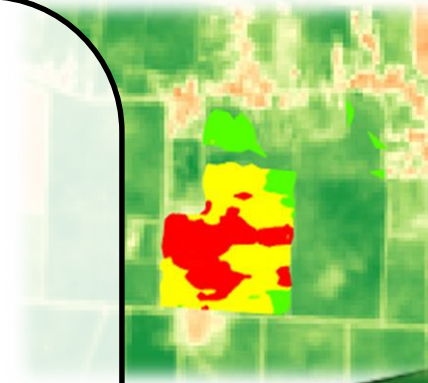


1

Your Fleet can Record...

- Yield & Moisture
- Fuel Usage
- A-B Lines
- Field Boundaries
- As Applied Data
- Elevation
- ...and much more

...then collect and summarize
from all machines.



What Do I Need?

Connected Solutions for Your CNH Machines



Data - Processing



2

AFS Desktop Solution

- Offline Solution
- View ALL collected Data
- Standardize all data from any machine
- Generate weekly, montly, yearly reports
- Create application maps for your crops

AgDNA Online Solution

- Online 'Cloud' Solution
- Utilises IoT Data for more informed decision making
- Satellite imagery available from crop condition
- Instant application maps based on crop health

FMIS – Farm Managament Information System

Your Recorded and Collected Data

What Do I Need?

Connected Solutions for Your CNH Machines



Data Output – Controlled and Informed



Powerful,
Accumulated
Data is now
able to be
Output...

Wirelessly
transfer to
your Fleet via
your
connected
solution

3



This Data includes:

- **Standardization**
 - Guidance Lines
 - Boundaries
 - Field Names
- **Application Control**
 - Spreading
 - Spraying
 - Planting

NO MORE GUESSING!

Going Further in Your Field...

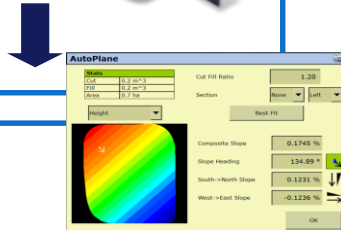
Advanced Farming Systems



Going Further in Your Field

Land Form and Water Management

Field Level Solution



needed to follow design



Control Components

s according to commands (via



Going Further in Your Field

Application Control

Section Control and Variable Rate Solutions

For Multiple Equipment



- **Section Control**



- **Variable Rate**

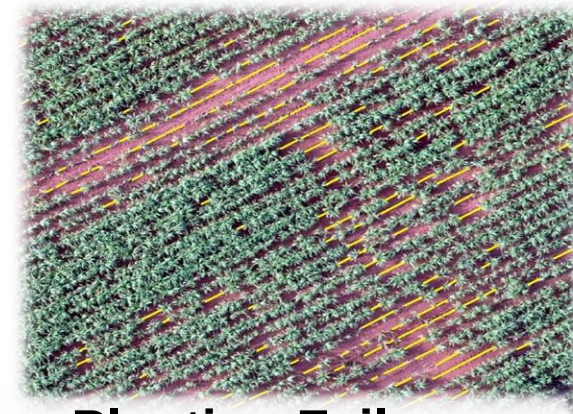
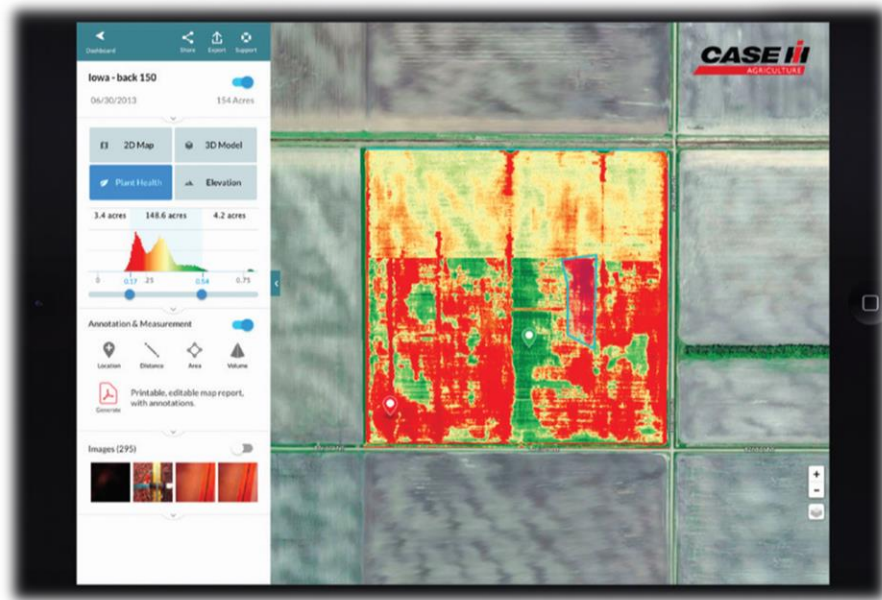
Going Further in Your Field

UAV Data Collection

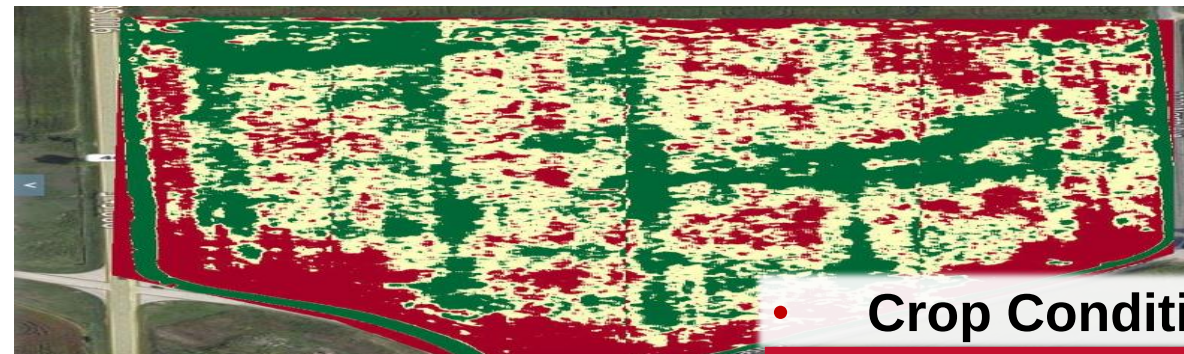
Case IH - Drone Deploy



- Realtime Data Collection



- Planting Failures



- Crop Condition



Advanced Farming Systems

The Solution for Your Better Tomorrow...

Thank You