MECHANIZED SUGAR CANE HARVESTING

CASE IH
History

- **1842** - Jerome Case established the Case Company in Wisconsin
- **1869** – 1st Case steam engine was produced
- **1919** - Case Corporation opens the first branch in Brasil, in Porto Alegre-RS
- **1985** - Case Corporation acquired International Harvester, introducing their line of produto: Axial-Flow, Cotton Express and grain Planters. From then on the agricultural line was called Case IH
- **1996** - Case IH strengthened their operations in Brasil with the sale of imported equipment, giving the country a strong company focus
- **1996** - Case IH purchased Austoft, the major world cane harvester manufacturer
- **1998** - Tyler, one of the major manufacturers in the world of sprayers and fertilizer applicators was acquired
- **2004** – All world research, development and manufacture of all cane harvesters was concentrated in Piracicaba-SP Brasil
- **2007** – Piracicaba plant produced it’s 1000th cane harvester
Factories

- Construction Equipment
- Tractors
- Grain Harvesters
- Sugar Cane Harvesters
- Coffee Harvesters
- Self Propelled Sprayers
- Grain Planters
Piracicaba Factory

- 1978 DEDINI TOFT MACHINES;
- 1982 DEDINI MACHINES;
- 1989 ENGEAGRO ;
- 1996 BRASTOFT (AUSTOFT +ENGEAGRO);
- 1996 CASE IH acquired AUSTOFT;
- 1999 CASE IH acquired ENGEAGRO;
- 2004 CASE IH Piracicaba –World Production
- 2007 CASE IH comemorates the production of the 1000th 7000 series cane harvester produced in the Piracicaba plant.
Piracicaba Plant

Land Area: 84,000 m²
Total Productive area: 12,000 m²
Production: 4 Cane Harvesters / Day
Piracicaba Plant

- New Facility – Training Center / Customer Support
Training Program

- Capacity – 2500 trainees
  - Electrical, Hydraulic and Mechanical
  - Dealer and Customer Technicians

NOTE: John Deere does not offer technical training for the customers at their plant!
PIRACICABA PLANT

- Absolute Leader in the WORLD Sugar Cane Harvester Market

- Responsibility to provide continuous improvement in the products to guarantee TOTAL CLIENT SATISFACTION
Cane Harvester History

Bundaberg – Austrália

In the 1940s, in response to the scarcity of hand labour created by the Second World War, brothers, HAROLD e COLIN TOFT, developed equipment to help with the sugar cane harvest.

- A cane loader mounted on an old model T Ford.

Starting here, They never stopped to prosper; and became the major Sugar Cane Equipment manufacturer in the world.

- In 1944: developed their first whole stalk cane harvester, using a 25 hp tractor.
In 1956 produced a cane loader with a hydraulically operated cane grab.

In the following 10 years produced a series of whole stalk cane harvesters both single and double row.

In 1966 introduced the J250, recognised as the best whole stalk cane harvester yet produced.

In 1968, their first chopper cane harvester CH200 was introduced. This machine enabled the cane to be harvested and loaded in a single operation. They also designed and built infield side tipping transporters...

In the 1970s the CH364 Robot was introduced, and also the 1000 série models 4000, 5000 e Toft6000, changing forever the concept of the mechanical sugar cane harvester, introducing hydraulic systems for all machine functions (rollers, transmissions, etc,...)
Cane Harvester History

- In 1985 Toft introduced the Series 7000, the first cane harvester to cut green cane in commercially acceptable tonnages.
- The Series 7000 AUSTOFT became the world reference in harvesting chopped green cane.
Cane Harvester History

- In Brazil in 1996 Austoft+Engeagro (Brastoft) started to manufacture the 7000 Series Austoft, renamed BRASTOFT at the Piracicaba plant.
- Soon after, in 1996 CASE IH bought Austoft and started producing Cane harvesters, under the CASE IH name, painted red.
Cane Harvester History

- In 2007 CASE IH commemorated the production of the 1000th cane harvester, series 7000, produced at the Piracicaba plant.
- This model underwent various changes and kept being a world reference in technology, performance and reliability.
Cane Harvester History

- Now CASE IH is introducing the NEW 8000 Series that has the best from 7000 series, with new technology and new features.
CAMECO began in the sugar cane market by buying the J&L Cane Machinery company, that was a manufacturer of whole stalk cane harvesters and cane loader.

In 1989, a short time later Austoft has launch the 7000 series harvester, CAMECO launch the harvester 2500CW with many things equal to the Austoft model. Because of this the american justice had blocked the production of these machines and had condemned CAMECO by project copy.

In 1991, CAMECO changed some things on the machine to get back on the sugar cane harvester market.

Afterwards CAMECO has kept following AUSTOFT-CASEIH steps year by year becoming our main important player/competitor.

Currently, the CAMECO is part of John Deere corporation and offer the JD3510/3520 cane harvester.
The History of CAMECO

After 2004, CAMECO has launched the 3500 model, that had many problems and then they relaunch the machine as 3510, that has a lot of changes comparing with the overtaken model 2500B.

Currently, the John Deere cane harvesters are built in two plants: one in Catalão – Brazil and another in Thibodaux - USA.
MECHANIZED CANE HARVESTING
Why harvest mechanically?
- Legal pressure to protect the environment by harvesting green cane

Economic Benefits
- In the majority of cases mechanical harvesting is much cheaper than manual harvesting.

Agricultural Benefits
- Green Cane Harvesting
- Protection from soil erosion
- Conservation of soil humidity for longer periods
- Increase of organic material in the soil
- Big reduction in herbicide use
- Co-Generation of Electrical energy
MECHANICAL SUGAR CANE HARVESTING

- Reorganisation of the farming System

- Basic requirements for a successful harvest:
  - A high quality harvester (A8800)
  - Well trained operators
  - Well prepared fields

“THE SECRET OF A SUCCESSFUL HARVEST COMMENCES WITH AN IDEAL FIELD LAYOUT AND FINISHES WITH A WELL EXECUTED FINAL CULTIVATION”
Mechanized harvesting in badly prepared fields causes:
- High cane loss
- Stool damage
- Root zone compaction
- Machine breakages & failures

“NO CANE HARVESTER IN THE WORLD CAN CORRECT BADLY EXECUTED SOIL PREPARATION, PLANTING OR CULTIVATION CARRIED OUT FOR MECHANICAL HARVESTING”

A low cost high tonnage mechanized harvest, with guaranteed residual stool longevity, depends directly on a well applied critical operational plan that starts long before planting.
Maximim operational slope
- 10% for wheel machine - A8000
- 15% for track machine - 18% WITH STABILITY KIT - A8800

Contour Banks
- The distance between contour banks should be as wide as the slope will allow, for the following reasons:
  - To allow the greatest number of long rows as possible
  - To create sufficient space to allow ease of operation for both harvester and haulout
  - Avoid short and dead end rows where practically possible
- Types of contour banks:
  - Cut in contours: Accompany field slope
  - Wide base contours: 20 to 25m base
MECHANIZED CANE HARVESTING

Cut in contour

Good for mechanized harvesting

Std contour

Difficult for mechanized harvesting

Wide base contour

Good for mechanized harvesting
MECHANIZED CANE HARVESTING

- **Headlands**
  - Positioned at strategic points to avoid crossing contour banks
  - Levelled to the same level as the planted area to facilitate all turning manoeuvres, avoiding damage to both harvester and haulout, and to increase machine performance

- **Cane Rows**
  - Should be as long as possible, avoiding dead ends that finish on the contour bank or in the middle of the field, to avoid lost time with unnecessary manoeuvring
  - Row spacing should be rigorously maintained to guarantee parallel rows

- **Field Hygiene - Remove obstacles**
  - Remove stumps, stones, trees, fences, ant beds, and all obstacles that could possibly impede the operation of, or cause damage to the machine.
  - Fill in all drains and erosion areas.
MECHANIZED CANE HARVESTING

- Selection of the best cane variety for different Soil types
  - Erect varieties – Easy to harvest
  - Lodge resistant - Low cane losses
  - Resistance to stalk splitting - Quicker germination & growth in ratoons
  - Natural free trashing - Better cleaning
MECHANIZED CANE HARVESTING

- **Planting**
  - Manual, semi-mechanised and mechanised
  - Use selected planting material (prepared clean seed cane plots)

  "Seed planted today is the cane for harvest for the next 5 or 6 years"

  **Row spacings:**
  - Agronomically correct row spacing = harvester track measurement. **IDEAL**
  - AVOIDS COMPACTION AROUND THE STOOL ROOT ZONE
  - 1,5m: good for mechanised harvesting
  - 1,4m: reasonable for mechanised harvesting; normally used in less fertile soils.
    - For A7700 sales in this row spacing the 16” grouser track plate should be sold.
  - 0,4m x 1,4m (pineapple planting): harvestable mechanically; spacing used in cane irrigated with the trickle system
  - 0,5m x 1,3m (pineapple style planting) harvestable mechanically- greater difficulty: spacing also used in cane irrigated with the trickle system.
MECHANIZED CANE HARVESTING

Conventional Planting

Conventional cane planting with a spacing of 1.5 meters.
MECHANIZED CANE HARVESTING

Pineapple Row Planting

PLANTIO COMBINADO 40 X 1.40 (PLANTIO ABACAXI)
MECHANIZED CANE HARVESTING

Regular Condition

Unsatisfactory for Mechanised harvest

Ideal for Mechanised harvest
Inter-row Cultivation

- **After planting levelling between the cane rows**: This is necessary to avoid high cane loss, stool damage through stalk splitting (creates slow and poor ratoon germination) and high extraneous matter mineral content, which slows down sugar manufacture and impacts on sugar colour lowering sugar quality and $ value.
MECHANIZED CANE HARVESTING

- **EQUIPMENT NECESSARY- Brazilian Conditions**

- **1 CASE IH Austoft A7000/A7700 Cane Harvester**
  - 1 harvester / 100,000 ton / season (depending on field conditions)

- **Side Tipping Transporter- Steel mesh enclosed**
  - 2 sets (4 transporters) of 8 tons or up to 14 tons, per harvester

- **Haulout Tractor**
  - Maxxum/Puma (160-180hp) – 2 wagons of 8 tons
  - Magnum 240 – 3 Wagons (8 tons) or 2 (14 tons)

- **Truck mounted side tippers**
MECHANIZED CANE HARVESTING

Equipment Necessary - Brazilian Conditions

- **Closed Platform Truck**
  - Treminhão - Truck & 2 trailers
  - Best performance in humid and accentuated slope areas
  - Night Transport (Truck & 1 Trailer)
  - Permitted by Law for night transport

- **Rodotrem - Roadtrain**
  - Higher capacity load
  - Better stability
  - Permits “bate e volta”
  - “One does not exclude the other”. Systems are complimentary.
Equipment Necessary

- **Mobile Workshop**
  - Preventive & Corrective maintenance

- **Field Fuel & Lubrification vehicle**
  - Fuel
  - Lubrification

- **Fire Fighting Vehicle**
  - Security
  - Washing
MECHANIZED CANE HARVESTING

• Adaption of the mill cane reception area
  • Redimension THE MILL YARD Reception area

• Hilo or transport unloading crane
  • Could be necessary to alter the cane feeding table

Roadtrain
Trailers
Chopped cane
Whole Stalk cane
MECHANIZED CANE HARVESTING

- ADAPTING MILL RECEIVAL
- FEED TABLE
  - Closed base table
  - Angle adjusted to feed both Chopped and whole stalk cane

- Cleaning

  Drycleaning system – becoming more popular

Chopped & whole stalk cane
Chopped & whole stalk cane
Comparative & Sugar Cane Harvesters 8000 Series
Sugar Cane Harvesters 8000 Series

A8000
- Tyred machine
  - Lower maintenance Cost
  - Easy dislocation

A8800
- Tracks
  - Better traction
  - Better manoeuvrability
  - Better stability
  - Agricultural grouser plates minimize compaction of the stool root zone
Sugar Cane Harvesters 8000 Series
Sugar Cane Harvesters 8000 Series

Topper

Function:

- Eliminate cane tops
- Distribute the tops evenly over the field
Sugar Cane Harvesters 8000 Series

**Topper** - standard
- *Hydraulic height adjustment*
- *Cuts off top in one piece*
- Whole tops take longer to decompose
- *New powerful hydraulic motor*
- *Better performance in heavy canes*

**Shredder Topper** - optional
- *Hydraulic height adjustment*
- Shreds the tops into small pieces
- Better distribution of shredded vegetable matter
- Vegetable matter takes less time to decompose
- 20hp more to operate than standard topper
Topper – JD3510
- Greater number of hoses
- Exposed hoses
- Higher maintenance
- Worse visibility

Topper - CASE IH
- Hydraulic command implemented in 1996
- Better efficiency and reliability
- Less number of hoses
- Less hoses failures risk
- Longer topper pole than 7000 series
Sugar Cane Harvesters 8000 Series

Chassis “Wide throat”

- Heavy duty chassis
  - Structurally analysed
  - Fuel & hydraulic oil tanks integrated into chassis.
    - Better Stability

- Wider throat opening (1.10m)
  - Better cane feeding
    - Developed to harvest pineapple planting spacing
    - Optional: - 100mm clearance increase – A8000
      - 150mm clearance increase – A8800
Chassis – JD3510

- Closer throat Opening: 1,0 m
- Greater feeding restriction than Case IH
- Tanks fitted on the side of the chassis
  - Worse stability
Crop Divider

- Crop divider functions
  - Lift & align recumbent cane

  o Separate the cane being harvested from the cane in the adjacent row
Crop Dividers 45° - CASE IH

- With 45° angle, without fixed shoes, with the new rotating and removable toe
  - Better performance in lifting the recumbent cane
  - Less soil movement
  - Less mineral impurities

- Shorter and lighter
  - Easy of maintenance

- With vertical knives as std
  - Reduce down time because avoid the blockage with trash and weeds

- With auxiliary dividers as std
  - Better efficiency in entangled canes
Crop Dividers - JD3510

- Heavier than CASE IH
- Worse flotation/Higher Ground Pressure
- Can have structural problems (cracks)
- Big fixed shoes
  - Greater soil movement (mineral impurities)
  - Easy to choke in front of the shoes
- Conic design increase the speed that can damage the adjacent stool in entangled canes
- Auxiliary crop dividers are **optional** and fitted in a higher position with a worse efficiency in recumbent canes.

**Austoft-CASE IH tested this kind of crop divider in 1999 and did not approve it!**
Side Trim discs

- Unique with 8 knives and independent adjustment position (mechanic or hydraulic)
- Better efficiency in separating the cane rows avoiding stool damage and cane loss in the adjacent row.
- Helps in the alignment of tangled cane.
- Permits independent adjustment of disc height from the cab.
- Assists in harvesting variations in cane conditions in the same field.
- Can be retracted hydraulically during operation to avoid cane loss through stalk breakage.
Side Trim - JD3510

- It is a kind of star with only 3 knives
- Low cut efficiency
- No position adjustment – fixed
- Can not be retract to avoid stalk breakage in erect cane
Power knockdown roller with hydraulic height adjustment

- Helps in feeding recumbent cane into the machine
- With mechanic or hydraulic adjustment
- Quick height adjustment from the cab (hydraulic), for varying crop and harvest conditions
- Incline the cane stalks away from the machine to facilitate the base cut.
- Improve the finish of the cut at the stalk base
Sugar Cane Harvesters 8000 Series

Knock Down Roller – JD 3510

- Also has hydraulic adjustment
- Less aggressive wings/bats. Lower feeding efficiency
Power Feed Roller
The main feed roller to the butt lift roller

- In erect cane is the principal roller to incline the cane and initiate feeding the roller system.
- Extreme condition kit – bolt on
  - Offered as spare parts
Power Feed Roller– JD3510

- There is no long fingers
  - Lower feeding efficiency
- Very close to the basecutter
  - Could damage the stalks (cracks) in erect canes
Base Cutter

- Cuts the cane stalks at ground level
- Base cutter height is controlled by the operator or automatically by the AUTO TRACKER (optional)
- Made up of two rotating discs each with 5 blades that laterally attack the line of cane minimizing cane loss
- The base cutter angle can be adjusted from 12,5° to 17,5°

“The efficiency of the base cutter is directly related to the field preparation, constantly spaced, parallel rows and a well executed, final field cultivation”
Base Cutter – JD3510

- No aggressive wings on the legs
  - Poor feeding
- Motor and filler located inside the frame
  - Worse maintenance
- The Case IH Austoft harvesters have the motor and filler mounted outside of the sidewalls for easy maintenance since the beginning of 7000 series
AUTO TRACKER
Electronic Control of the Base Cutter Height

- Control Monitor
- Base Cutter pressure sensor
- Height sensor
EXCLUSIVE to CASE IH

AUTO TRACKER
Electronic Base Cutter Height Control

- Automatic height control
- Feed system choke alarm
- Automatically raises base cutter leaving the cane row
- Operates in any field condition
- No wearing Parts
- Simple to install
- Luminous screen

Tests – Performance approved

<table>
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<th>Seasons</th>
<th>Hours</th>
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Auto Tracker-Pressure x Base Cutter height

Manual Control

Usina São João – Green Cane 1st Ratoon 10/2005
AUTO TRACKER - Pressure x Base cutter height

AUTO TRACKER
Automatic Control

Usina São João – Green Cane 1st Ratoon 10/2005
AUTO TRACKER

- Guaranteed Production for the next season
- Root damage reduction of 27.2%
- Stool damage reduction of 28.3%
- Reduction of stool elimination at end of rows of 62.9%
- Money saving
- Cane loss saving of 720 kg/ha in stump height

Exclusive to CASE IH
Automatic Basecutter Control – JD3510

- **CACB – JD3510**
  - Works based only on the basecutter pressure
  - There is no reference for **height** (no heigh sensor)
  - Does not have the function “automatic raise on the end of the rows”
  - Greater losses on areas with different type of soils and field profile
Sugar Cane Harvesters 8000 Series

Butt lift Roller

- Lift and feed cane into the harvester
- Open slat design
  - Avoid the accumulation of soil on the roller
- Closed slat design
  - Avoids cane loss in operation
**Feed roller train**

- Transports the cane up to the chopper roller
- Starts the separation of extraneous matter from the raw material (cane): stones, dirt trash etc,…
- Top floating rollers
  - Adjust to the differing volumes of material being fed avoiding chokes in the system
- *Rollers driven by independent* hydraulic motors but they are part of the same system of basecutter and chopper. It guarantees the synchronism and efficiency
  - The motors with low pressure seal provide greater shaft life and low maintenance costs
- **Control of the billet size from the cab**
- Easy to remove the rollers
- Bolted roller stop – easy maintenance
- Hard face on the roller provides greater life
Feed Roller Train – JD3510

- Feed motors are independent from the basecutter and chopper hydraulic system
- The billet size is controlled outside of the cab
- External bearings
  - Easy to replace the bearings

0 Case IH had this system in 6000 series but keep the internal bearings because the bearings use to be replaced on the end of the season, when is necessary to take out the rollers to make hard surface.
Chopper drums

- Cuts cane into billets
- Throws the billets into the elevator bowl

Before the cane falls into the bowl, the billets pass across the primary extractor ring and is cleaned of trash and dirt

- 4 blade chopper roller - standard
  - Shorter billet length
  - Better extraneous matter extraction
  - A denser heavier load
  - Lower transport cost
Sugar Cane Harvesters 8000 Series

- **Heavy Duty Chopper Flywheel**
  - Improved performance
    - 15% more inertia in the chopper
  - Simplicity of mounting
  - Interchangeable with previous models

- **Two motors drive two shafts through direct couplings. The gears only guarantee the synchronism**

- **Heavy Duty Chopper System**
  - Increase chopper performance in heavy cane
  - Interchangeable with previous models
Chopper Rollers – JD3510

- One single motor drives the first shaft gear through a pinion and the other shaft is driven by the first through another gear.

- It is necessary to have an extra roller to transport the billets to the cleaning chamber.

  - Choke risk
Sugar Cane Harvesters 8000 Series

Primary Extractor

- Remove trash separated by the feed roller & chopper systems

Components

- Two piece Polyethelene Hood
- Hydraulic Motor (Variable speed) operator regulated
- 4 blade fan (*anti-vortex*)

Hydraulic slew

- Hood, operator adjusted from cab independent of the position of the elevator
- Heavy Duty Barrel - Optional
Primary Extractor

- Anti-Vortex system – 4 blades
  - The new design eliminates the vortex effect:
  - excellent air flow through the cleaning chamber
  - excellent cleaning efficiency
  - Reduced costs by:
  - lower working speed
  - uses less/hp(-30cv) less fuel use
  - Reduces shredded cane loss by (50%)
  - Increases blade working life (3x)

- Speed controlled from cabin by operator
- **Exclusive Heavy Duty wear ring**
  - 4mm hard face in all the ring surface
  - Increase the ring life
  - Reduce the down time

Exclusive to CASE IH
Primary Extractor – JD3510

- 4 blades fan
- Plastic hoods
- Fan motor fitted inside of chamber
  - Easy to accumulate trash

- Case IH uses plastic hood since 1996
Sugar Cane Harvesters 8000 Series

Secondary Extractor

- High resistance plastic hoods
  - Advanced design guarantee the trash to be spread away from the haulout
- Hydraulic slew

Secondary Extractor – JD3510

- Hood Plastic
  - Case IH use this type of hood since 1996
- Hydraulic slew
Sugar Cane Harvesters 8000 Series

- **Reinforced Elevator Structure**
  - Less maintenance
  - Longer working life
  - Slew system simple and reliable

- **Slotted floor for dirty elimination**

- **Different Extension Options**
  - 300mm(top), 300mm(top)+250mm(body), 900mm(top)
  - Provide better controlled traffic
    - Provide better layout for the harvester and haulout.
Sugar Cane Harvesters 8000 Series

Unloading System – JD3510

- Big distance between the elevator bowl and the primary extractor chamber
  - Increase losses

- Elevator stand up
  - Need high conveyor blades.
  - Early gears and chain wear

- Tension system with greased cylinder
  - Don’t guarantee good alignment

- Greater number of exposed hoses
  - Increase the failures risks
Sugar Cane Harvesters 8000 Series

Engine

CASE IH 9 L
• Cursor 9
• Power: 350 hp @ 2100 rpm
• 6 cylinder
• 9 liters
• Turbo After Cooler
• Tier III
Sugar Cane Harvesters 8000 Series

Engine – JD3510

John Deere
- JD6068H / Power Tech
- Power: 332 cv
- 6 cylinder
- 8.1 liters
- Turbo Aftercooler
- Injection pump – electronic controller

- This engine doesn’t have enough reliability for sugar cane application
  - Many failures on the 3500 series
- High fuel consumption
Open Circuit
- Circuits that are not high pressure
  - Gear Pumps and motors
  - Higher tolerance to impurities
  - Lower maintenance cost
  - Less hoses

Closed Circuit
- Circuits that use high pressure
- Piston pumps and motors
  - Higher load capacity
  - Suction and return filters
Sugar Cane Harvesters 8000 Series

New Cooling Package

Radiators
- Located on the top
  - Better air flow
  - Better cooling efficiency
  - New rotary air screen
  - Positive pressure on the engine box
    - Better cleaning
    - Low fire risk
  - Better engine access
Sugar Cane Harvesters 8000 Series

- **New Hoses Vendor**
  - Better Quality

- **New Hoses Layout**
  - Less hoses than previous model
  - Minimize exposition and interferences
  - Reduce stress on the hoses and fittings
  - Minimize failures risks
Sugar Cane Harvesters 8000 Series

- Hydraulic Circuit oil distribution blocks
  - Less hoses
  - More efficient use of oil

- Suction & Return Filters
  - Guaranties clean oil in the circuits
  - Excess vacuum alert sensors indicate dirty filters
Hydraulic System – JD3510

- Great hoses reduction than the previous model 2500B
- Many hoses inside the engine box (spaghetti)
- Feed rollers without drain, but with high pressure seal
  - JD still has more hoses than case in other parts (Topper, Elevator)
  - The high pressure seal usually damages the motor shaft, increasing the maintenance costs.
  - On the 8000 series Case IH just takes out the drains on the motors that don’t have high load. The system still have some case drain lines for safety.
Sugar Cane Harvesters 8000 Series

- **Cab Upgrade**
  - Better Comfort
  - Ergonomic Controls
  - Training Seat
  - New Display
    - Data logger
    - Encoder
  - Ground Speed Sensor
  - Auto Guidance Ready
Sugar Cane Harvesters 8000 Series

- **Cab Upgrade**
  - Electronic Transmission
  - Joystick
    - Without drive wheel/sticks
Sugar Cane Harvesters 8000 Series

Cabin – JD3510

- Tilt forward
  - Don’t have side tilt because stability problems
- Ergonomic controls
  - Case IH use joystick controls since 1995, and continue improving now
- Electronic transmission only for track machines
Sugar Cane Harvesters 8000 Series

- **Agricultural Tyres**
  - **Front**
    - **GoodYear 400/60-15.5– 14PR – Superflot II**
      - From 12 to 14 ply
      - High Flotation
      - Low compaction
  - **Rear**
    - **GoodYear 23.1 – 26 – 16 PR**
      - Better load capacity than the previous AG tyres
      - Better traction than scraper tyres
      - Better self cleaning
Sugar Cane Harvesters 8000 Series

- Heavy Duty Chain D5M
Sugar Cane Harvesters 8000 Series

- **Heavy Duty Track D5M**
  - **Reinforced Chain**
  - **New Dimensions:**
    - Link height increased from 95 mm to 106 mm
    - Bush diameter increased from 54 mm to 60 mm
  - Interchangeable with previous model
    - Change the chain and sprocket
    - Rework the Guide plates and grouser plate holes.
Sugar Cane Harvesters 8000 Series

Tracks – JD3510

- Problems with track frame - cracks
- Problems with rollers
- Difficult rollers access
- Few side guides don’t guarantee enough alignment

- D4 Track Chain
  - Less reliability
Sugar Cane Harvesters 8000 Series

- Auto Guidance
  - Parallel rows
  - Controlled Traffic
  - Reduced compaction
  - Improved operator comfort
Sugar Cane Harvesters 8000 Series

- Auto Pilot – JD3510
  - Auto Trac - AMS
  - Still testing for track machine
  - JD system doesn’t have the same capability to read the field profile than Trimble (CASE IH) system