

# John Deere

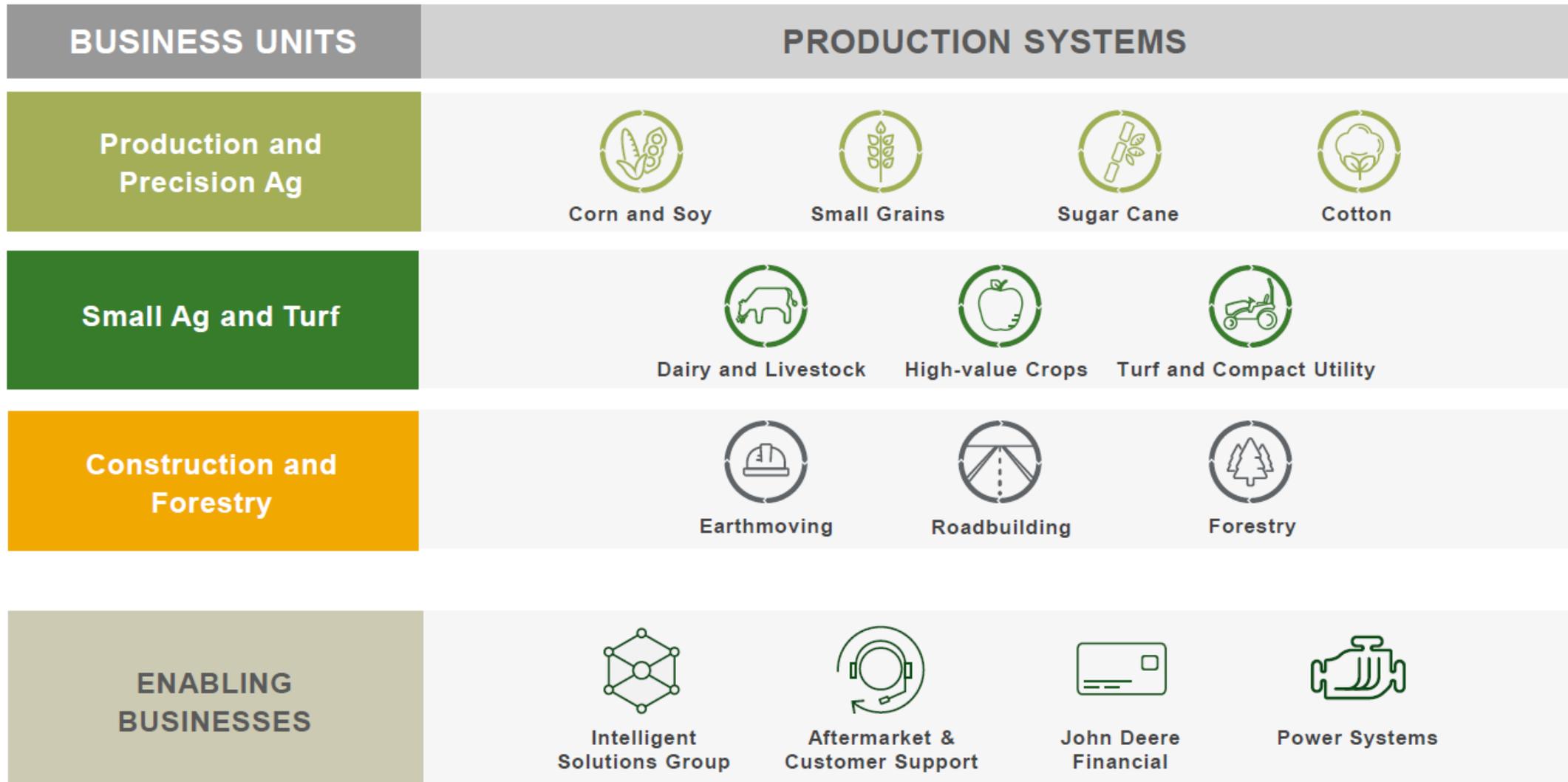
September 22, 2021



JOHN DEERE



# John Deere Organization



# Product Portfolio

John Deere produces a wide variety of products each with their own requirements and duty cycles



# Off Road: Highly Different and Harsh Conditions

**Wet**



**Cold**



**Debris**



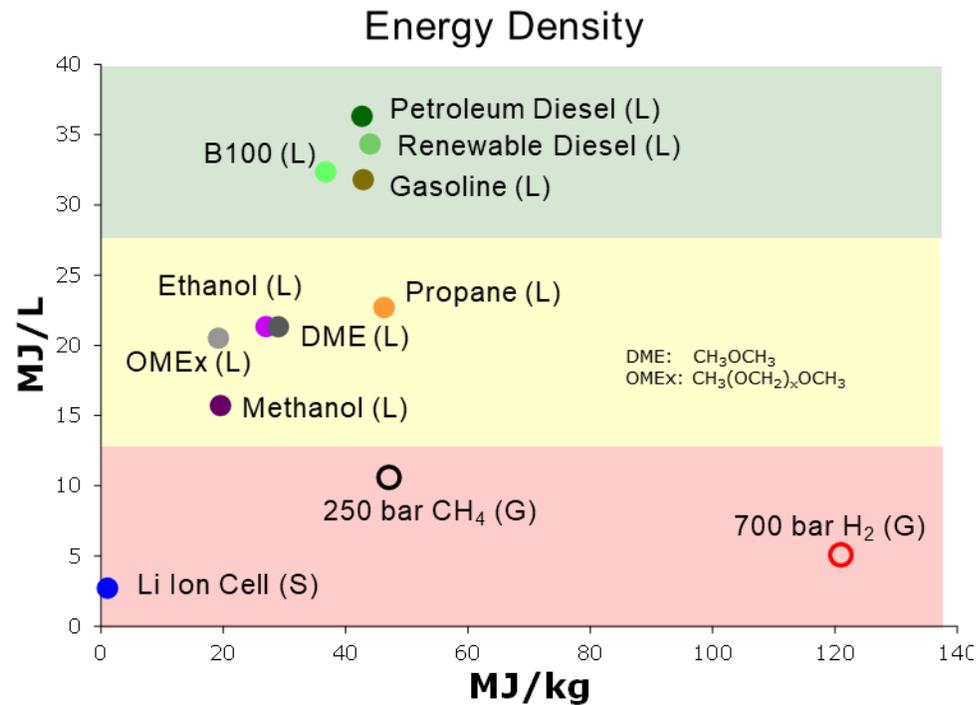
**Slope**



## Differences

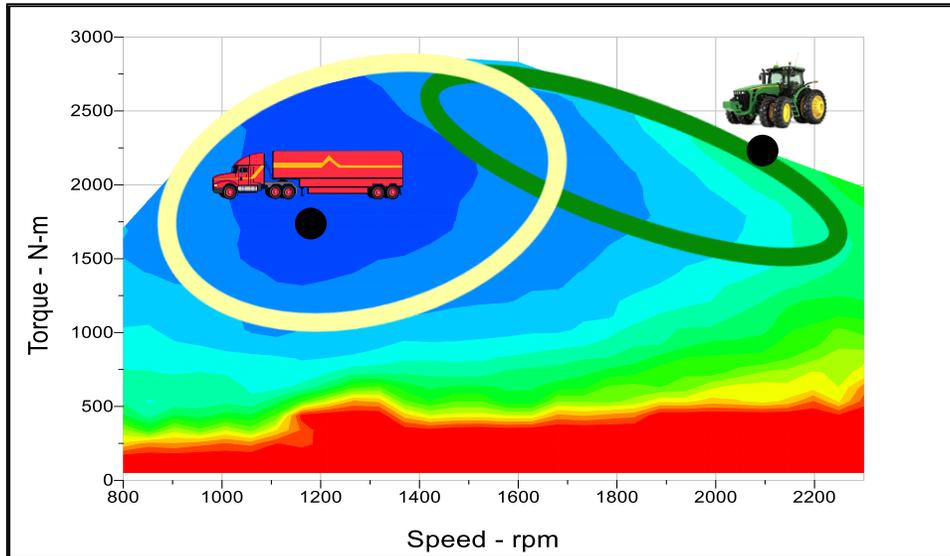
		
Working Speed	60 (miles/hr)	5 (miles/hr)
Cooling	Ram Air	Fan Power
Intake Air	Clean	Variable
Work Surface	Pavement	Dirt
Fluid Refill	At Station	At Machine
Usage	Continuous	Seasonal
Duty Cycles	Few	Many
Transient Demand	Medium	High
Off-Level	Minor	Substantial
Vibration	Mild	Severe
Environment	Clean	Debris

# Hydrogen Storage Onboard



# On-Highway Truck vs. Production Ag Applications

**Best BSFC(g/kWh) High Productivity**



# Diesel Alternative Solution Comparison Today

- 9.0L Engine: ~300kW / 35%Load / 10 hrs
- For similar weight/space constraints
- Fuel Cell System:
  - Installed Cost: 7.5X Diesel
  - Refill Freq: 10X Diesel
  - Fuel Cost/kWh: 4-5X Diesel



# Where is the infrastructure?





**JOHN DEERE**