Organic manures: Mechanisation

IT'S NOT ALWAYS SIMPLE !

- Timing / incorporation: securing the nutrients (N)
- Transport, distance and DM%
- Trafficability, compaction, tyres
- Even application,

Securing the Nitrogen

Why? Financial and ensuring opt N achieved

1. Pre-sowing - Incorporation

Pig slurry 22,500 l/ha (2000g/ac) R.Hackett.

- Immediate 57% N Delayed 3 days: 32% N

Slurry: < 2 hrs
Poultry manures: < 6 hrs
FYM: < 2 hr. But little available N at risk

2. Applying to growing crop

Low emission spreading

e.g. band spreading etc

Logistics challenging

- Timing to suit season, weather, soil and crop
- Transport distance and cost
- Intermediate storage or nurse tanks
- Need to incorporate
- Clash with other operations

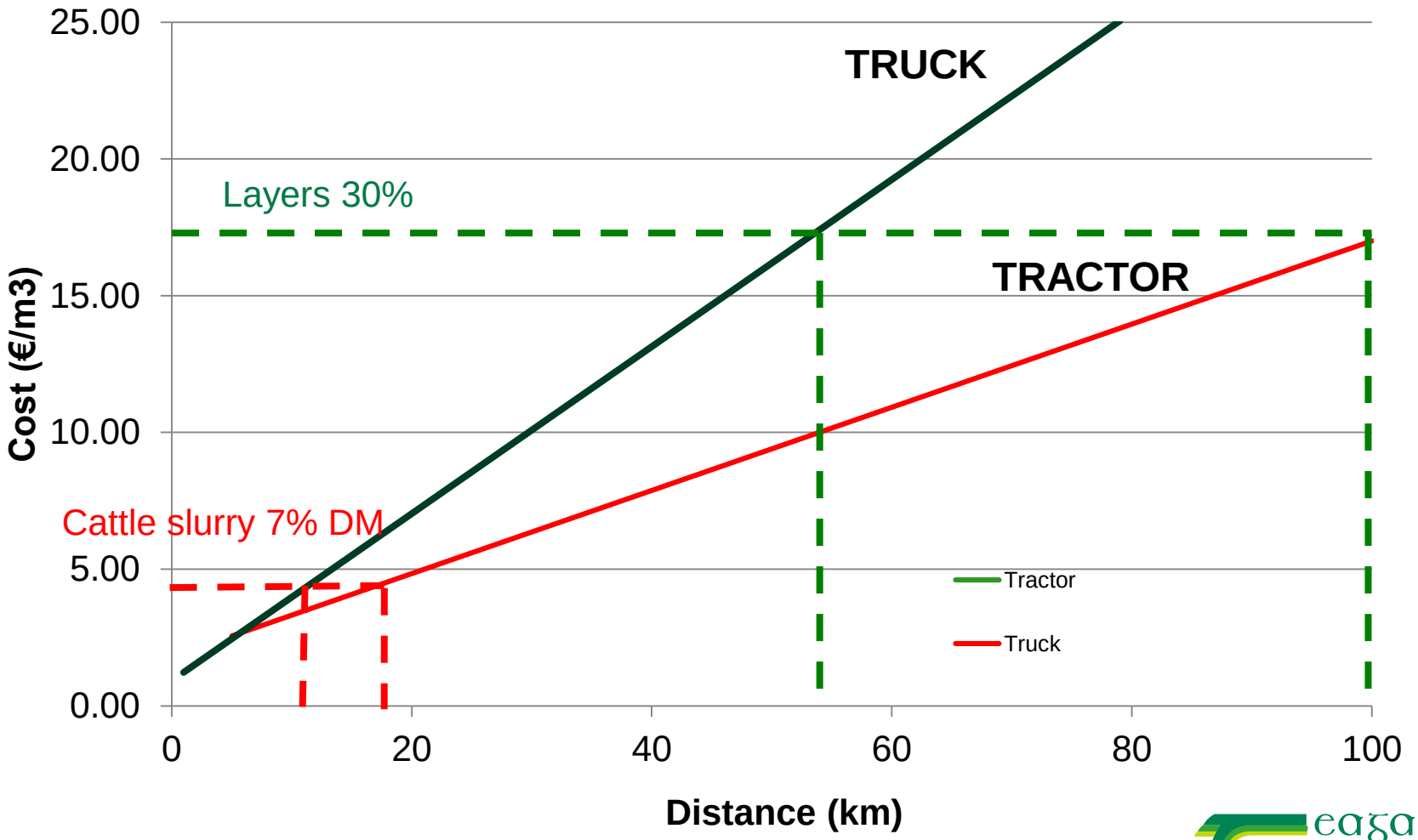
Nurse tank

Transporting water is expensive

	Fert Value
• Bulk fert spreader with 10 t NPK:	€3,600 / load
• Tanker 10 t cattle slurry (7% DM)	€44 / load
• Spreader with 10 t Layers (30% DM)	€170 / load
• Spreader with 10 t Layers (55% DM)	€310 / load

Transport costs: Tractor (13m³) vs Truck (25m³)

(adapted from Lynch and McCutcheon)



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Protecting the soil - Factors

• Soil Moisture:	Wet soils
• Cultivation	Min till vs Plough
• Axle load	Big machines
• Ground pressure	Expensive
• Timing	Restricted
• Capacity	Impacts timimg

Big tankers – large field tyres!

Tanker	Weight (t)	Load on Axles (t)	Wheel (t)	Tyres	Press (bar)
2500 R	15.5	12.5	6.25	30.5R32	**2.2**
3000 T	18.6	14.6	3.7	550/60R22.5 600/55R26.5	**2.0** **1.6**
4000T	24	20	5	600/55R26.5	**2.5**
5000 triple	34.5	30.4	5	750/55R26.5	**1.6**

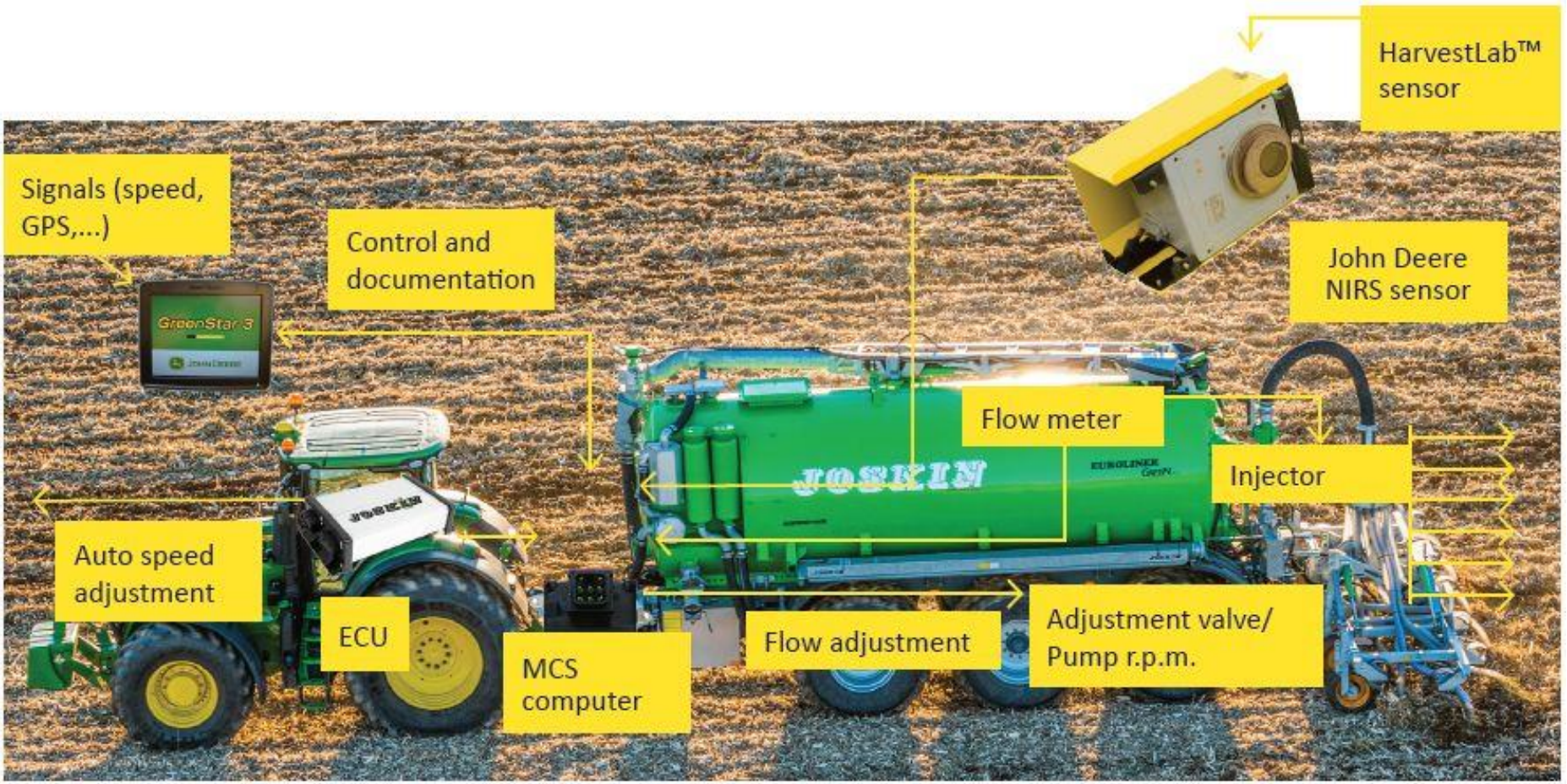
- Target for winter / spring: 0.8 to 1.0 bar pressure

Low ground pressure and Immediate incorporation

Even application

- **Slurry:**
  - Know the DM and Nutrient content
  - Vacuum tankers and splash plates poor
  - Positive displacement pump /Macerator / distributor + hoses
- **FYM /Muck**
  - Know the DM and Nutrient content
  - Weigh and measure area
  - Even distribution essential: look for test CV

Nutrient sensing and control



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- Distributor /pipes: Even and low emissions

Correct rate and Even application