

# MONASH INDUSTRY TEAM INITIATIVE (MITI) 2016-17

## Re-designing large herd farm systems to better manage cow movement and nutritional management

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### Project Scope

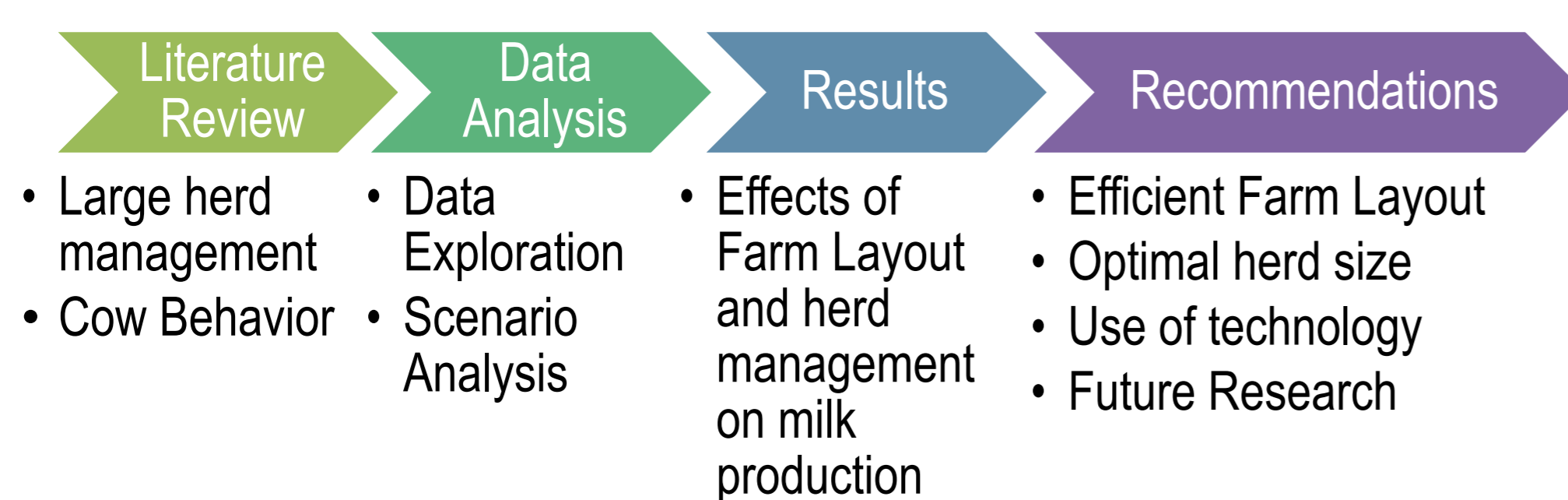
In Australia, large dairy farms constitute only 6% of all farms but contribute 29% of total milk production. On larger farms cows spend more time off pasture and walk longer distances which reduces milk output. Economically mitigating these issues would greatly boost productivity in this important and ever intensifying industry.

### Project Objectives

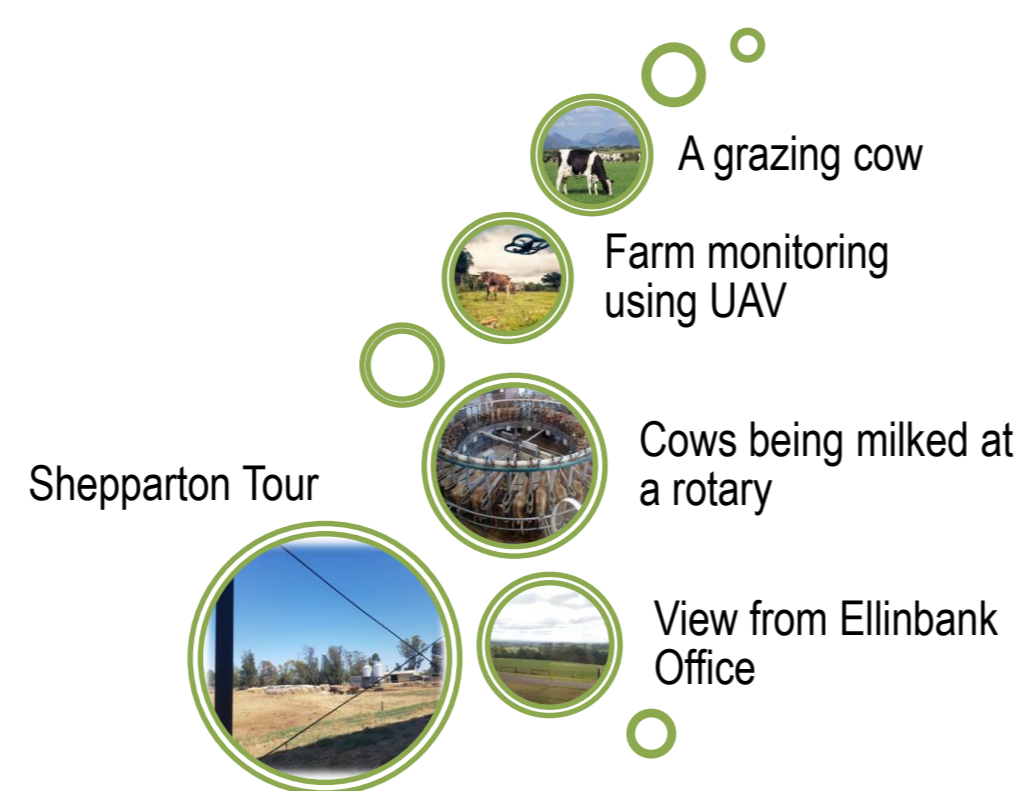
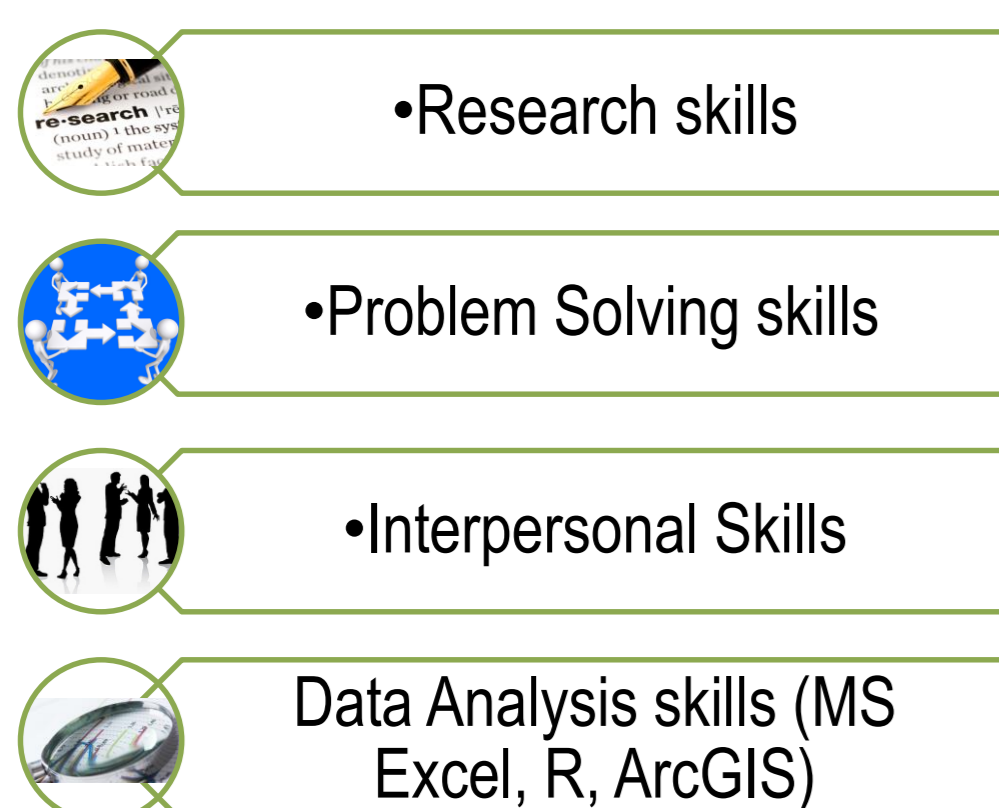
This project analyses data from three different farms to:

- Explore the effect of farm layout on milk production
- Understand the relationship among walking distances, time off pasture, milking order and milk production
- Explore the use of technology in large herd management

### Approach/Process:

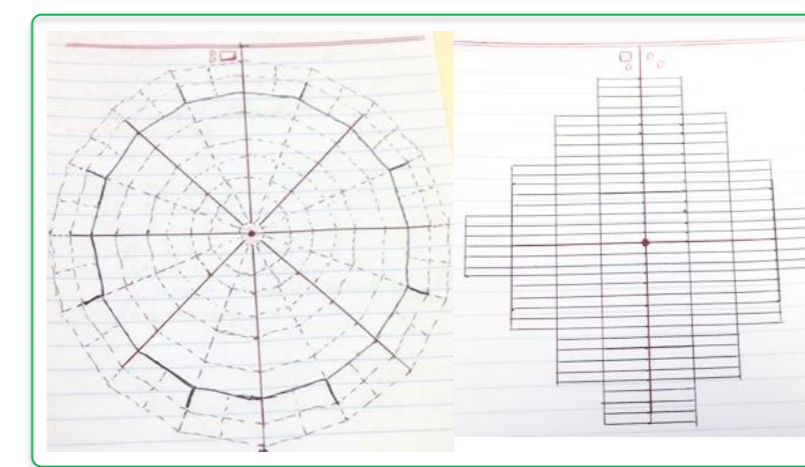


### Learnings



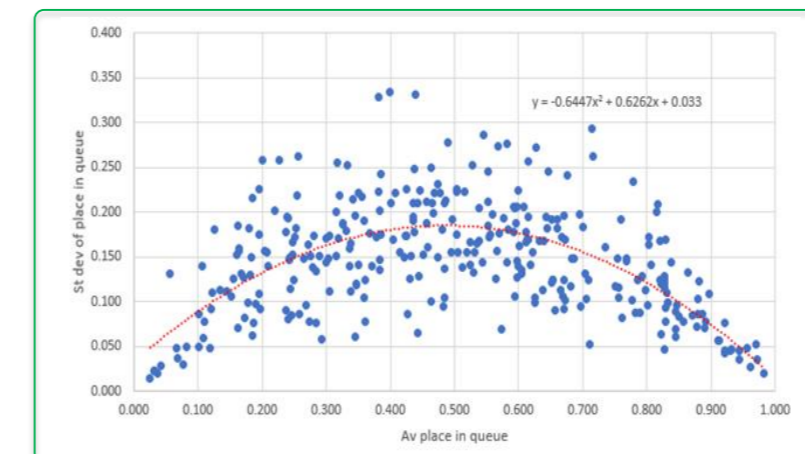
### Project Outcomes

#### Outcome 1: Farm Layout



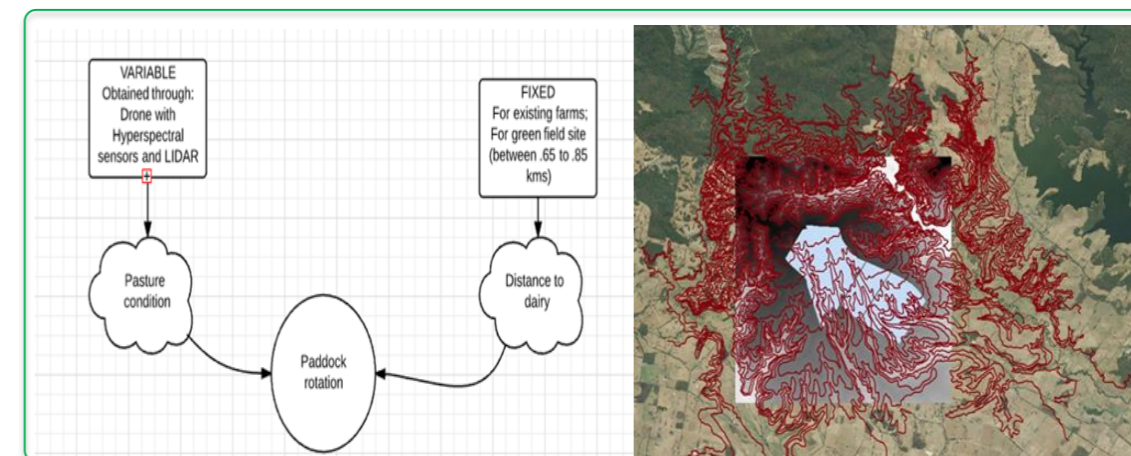
- Benefits of central dairies
- Cost Benefit Analysis of multiple dairies
- Optimal farm layout

#### Outcome 2: Milking Queue

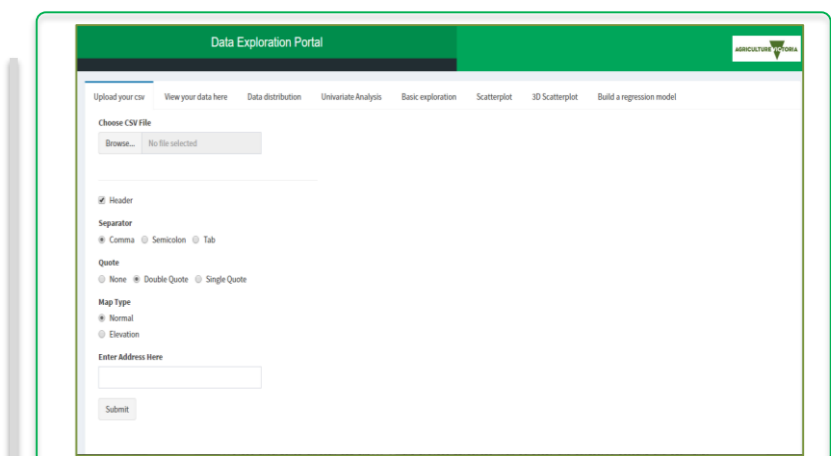


- Consistent Milking Order
- Milking order correlated with milk production
- Cost Benefit Analysis of Herd Splitting

#### Outcome 3: Use of Technology



Use of UAVs, RFID, GPS and GIS Technology to get precise data on animal and pasture



Use of statistical software and portal in future research

### Recommendations

- Use only one dairy, and place it in a central location.
- Design an efficient layout with virtual fencing.
- Use precision agriculture techniques (RFID technology, GPS, drone imaging).

### Future Research

- Any causal relationships between milking order and milk production.
- The relative impacts on milk production of more time away from pasture, longer standing times and poorer quality of feed.
- The practicality of a circular farm layout.
- The benefits of herding cows with drones and using ArcScene for 3D imaging of farm terrain.