

Stellenbosch University agent-based modelling

An agent-based approach towards a cost-effective sustainable solution to last-mile deliveries in South Africa

- **Aim:** ABM for sustainable last-mile logistics deliveries in SA
- Determine effectiveness of solutions
- Motivated by growth in parcel delivery emissions
- Battery-electric, LGV, motorcycles, bicycles, walking
- How would delivery system restructure?
- New infrastructure e.g. charging points

An agent-based approach to carbon mapping for fruit exports to inform supply chain decision strategies

- **Aim:** develop ABM to inform fruit export SC decisions with consideration for overall emissions
- “Supply chain activities” construct to determine carbon mapping of physical logistics activities through supply chain
- Transport modes, cool storage, palletised fruit, container handling at pack house, terminals, cold stores, ports
- Emissions intensity factors based on operational dynamics and behaviour based on vehicle type, storage type, handling methods, etc
- SA fruit export industry: model specific O/D combinations per shipment

