

## **General requirements**

- Should be written to align with Part 61 Stage II

## **Student qualification**

- Commercial Pilot Licence
- Hazardous goods endorsement
- National Certificate in Aerial Agrichemical Application (or equivalent acceptable to the Director)
- Ag Aviation Operational Standards

## **Ground instruction**

- Legislation including CARs, HSE, RMA, HSNO
- Fatigue Risk Management
- Human Factors
  - Culture
  - Attitude
  - Awareness
  - Health
  - Information processing
  - Disorientation & illusions
  - Threat & Error Management
- Overdue/accident procedures
  - Review of company procedures

## **Flight assessments**

## **Training records**

## **Flight test**

## **Issue of rating**

- Logbook endorsement

## **Continuation training**

### **Competency checks**

- BFR checks in addition to ag competency checks (for situations where an ag competency check has to be observed from the ground)

### **E Category instructor rating**

- Issue
- Currency requirements

### **Foreign pilots**

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## Appendix I – Training for aeroplane agricultural rating

### 1. General

### 2. Type conversion and familiarisation

#### Ground instruction

- Study of aircraft handbook & flight manual
  - Normal procedures
  - Emergency procedures
  - Flight limitations & placards
  - Aircraft Performance
  - Weight & balance considerations
  - Safety equipment
  - Jettison systems
  
- Aircraft systems
  - Review of applicable flight manual sections
  - Introduction to GPS guidance
  - Operation of electronic tracking system

#### Flight instruction

- Pre-flight inspection
- Engine start and warm up
- Before take-off checks
- Take off and climb
- Climbing and steep turns
- Approach to stall (various configurations)
- Normal approach and landing
- Forced landings
- Approach, aborted landing and overshoot
- Rundown, stopping engine. Parking and picketing

#### Flight times

### 3. Intermediate training

#### Ground instruction

- Low level operations over various types of terrain & techniques associated with low level flying & contour flying
  - Mechanical turbulence & minimizing effects of mechanical turbulence
  - Obstructions to navigation e.g. spars
  - Wires - avoidance & identification techniques
  - Glare & sun angle
  - Stock, 3rd parties, machinery & buildings
  - Contour flying

- Effect of flap in turns
- Techniques associated with low level operations over various terrain types
- Low flying at max all up weight

### **Flight instruction**

- Steep and maximum rate turns
- Minimum radius turns (Low g)
- Stalling in turns
- Low flying with emphasis on steep turns, effect of wind and use and effect of flap
- Circuits 300 feet and 100 feet
- Crosswind and downwind landings
- Low flying over differing terrain at gross weight
- Introduction of GPS Guidance

### **Flight times**

## **4. Agricultural pilot training**

NOTE: Add info about spraying

### **Ground instruction**

- Flight to and landing at operational airstrip
  - Low level map reading
  - Airstrip identification
  - Inspection of airstrip from the air – obstructions, livestock, fences etc
  - Approach to strip (assessing overshoot point) and landing
  - Airstrip assessment post landing
  - Effect of surface conditions (soft ground, grass, thaw etc) slope and wind direction
- Operational planning
  - Briefing of and aerial inspection of work area
  - Boundary recognition
  - Sowing plan – sowing run direction
  - Use of GPS
  - Effect of sun glare and turbulence
  - Fuel management
  - Operation of loading area
  - Positioning aircraft at loader
  - Briefing loader driver – selection of loads, signals to driver
- Flight between airstrip and sowing area
  - Take off and cruise – engine failure

- Flying parallel to high ground - turbulence
- Flying up and down slopes – up and down draughts
- Flight into valleys and across ridges – false horizon and turbulence
- Application techniques
  - Operational planning – shape, terrain, obstacles, sun, wind
  - Application height
  - Selection and keeping straight on markers (GPS) - estimating swath width and drift
  - Procedure turns – use of flap and power
  - Operation of hopper controls
  - Operation and effect of dump – correct time to dump
  - Effect of changing load on trim, aircraft control and performance
  - Complete treatment of area – clean up runs with reassessment of obstacles
  - Engine failure
  - Effect of aircraft equipment on aircraft performance (spreaders etc)
- Environmental responsibilities
  - Establishing correct application area, correct application rates
  - Physical environment
  - Confining product within boundary
  - Third Party Risk
  - Livestock & wildlife
  - Accepting & declining tasks
- Aircraft & role equipment handling & care
  - Cleaning windscreen
  - Care of aircraft – cleaning, maintenance of role equipment
  - Early morning icing & fogging
  - Serviceability of engine & instruments
  - Refuelling, hot refuelling
  - Installing & removing role equipment
  - Pilot maintenance
  - Agricultural pre-flight including role equipment
- Record keeping
  - Daily flight records
  - Aircraft tech logs
  - Defect recording & rectification

### **Flight instruction**

- Inspection of airstrip, and take off & landing approaches
- Appreciation of overshoot point

- Operations on airstrip, selection of loads, signals with driver
- Take off decision point –dump
- Briefing of work area, boundary inspections, planning of work,
- Fuel management
- Simulated topdressing runs, block planning and application methods (racetracking)
- Procedure turns
- GPS operation & techniques
- Productive flying with work load being transferred gradually from the instructor to the pilot under supervision

### **Flight times**

- Give consideration to minimum hours of direct supervision
- Initial issue of ag rating by third party (E Cat currently, FE in future).  
Independent E Cat for initial issue of rating – unable to reach agreement at the meetings and will need further consideration if the new Part 61 rule to introduce Ag flight examiners is not in force.

## **Appendix II – Training for helicopter agricultural rating**

### **1. General**

### **2. Type conversion and familiarisation**

#### **Ground instruction**

- Study of aircraft handbook & flight manual
  - Normal procedures
  - Emergency procedures
  - Flight limitations & placards
  - Aircraft performance
  - Weight & balance considerations
  - Safety equipment
  - Jettison systems
  
- Aircraft systems
  - Review of applicable flight manual sections
  - Introduction to GPS guidance
  - Operation of electronic tracking system

#### **Flight instruction**

- Pre-flight inspection
- Loading & performance
- Engine start emergencies
- Correct start & warm up procedures
- Before take-off checks
- Lift into hover, pattern flying and hover
- Take off and climb; climbing and descending (straight and whilst turning)
- Circuits
- Limited power take-offs & landings
- Quick stops
- S-turns & steep turns
- Autorotations
- Tail rotor failures
- Confined area operations
- Slope landings
- Rundown, stopping engines, and tying down rotors

#### **Flight times**

### **3. Intermediate training**

#### **Ground instruction**

- Low level operations over various types of terrain & techniques associated with low level flying & contour flying

- Mechanical turbulence & minimising effects of mechanical turbulence
- Mast bumping
- Obstructions to navigation e.g. spars
- Wires - avoidance & identification techniques
- Glare & sun angle
- Stock, 3rd parties, machinery & buildings
- Controlling ground speed and operational height above the ground
- Establishing a pattern & factors to consider if modifying pattern
- Low flying at maximum all up weight
- Requirements for hovering in & out of ground effect
  - Gross weight considerations
  - Effects of water, long grass etc
- Effect of loss of translation
  - Factors that cause loss of translation
  - Minimizing effects of mechanical turbulence
  - Loss of translation during take-off
  - Loss of translation during low level flight
- Importance of RPM control
  - RPM versus boost or torque
  - Engine handling

### **Flight instruction**

- Spray turns
- Low contour flying with emphasis on constant speed & height above ground
- Prolonged hovering in & out of ground effect – emphasis on accuracy & position holding
- All up weight operation
- High altitude take-offs & landings
- Advanced mountain flying

### **Flight times**

## **4. Agricultural pilot training**

### **Ground instruction**

- Calibration solids & liquids
  - Factors affecting calibration
  - Use of formulae
- Application techniques
  - The effect of slope on swath width
  - The effect of wind on ground speed and application pattern

- The effects of spray height on droplet recovery & swath pattern
  - Single pass
  - Half overlap
  - Racetrack
- Application rates
  - Affect of slope on application area
  - Label recommendations
  - Product or tech rep recommendation
- Nozzle types & selection
  - Various types of nozzle and VMD
  - Product or tech rep recommendation
  - Water rate requirements
  - Target species canopy make & penetration requirements
- Factors affecting drift & droplet recovery
  - Primary drift
  - Evaporation
  - Secondary drift
  - Wind strength and direction
  - Humidity including fog & drizzle
  - Temperature
  - Slope
  - Nozzle selection & boom pressure (hydraulic shattering)
  - Boom width and rotor vortices
  - Aerodynamic shattering
  - Penetrating adjuvants
- Minimizing drift
  - Use of met conditions
  - Nozzle selection & boom pressure
  - Anti-drift agents
  - Spraying oils
  - Shut off boom
- Environmental responsibilities
  - Establishing targets, correct application rates & techniques
  - Physical environment
  - Sensitive off target species
  - Other people
  - Livestock & wildlife
  - Accepting & declining tasks
  - Insecticide toxicity to bees
- Decontamination
  - Aircraft

- Between jobs
- Sensitive crops
- End of each operational period
- Aircraft & role equipment handling & care
  - Cleaning bubble
  - Cleaning blades & effect on performance
  - Early morning icing & fogging
  - Serviceability of engine & instruments
  - Refuelling, hot refuelling, fuel management & monitoring
  - Airborne safety equipment
  - Installing & removing role equipment
  - Pilot maintenance
  - Agricultural pre-flight including role equipment
  - Role equipment inspection & maintenance programmes
  - Hopper, tank & where appropriate jettison systems
  - Spray equipment components & operation
  - Spreading equipment components & operation
- Selection of load sites
  - Obstacles & access for support equipment
  - Wind direction
  - Suitability of water supply
  - Adverse meteorological conditions
  - Environmental considerations on load site
  - Environmental considerations for flight paths to & from operational area
  - Load site safety equipment
  - Security
- Briefing & communications with ground crew
  - Briefings
  - Ground crew record keeping
  - Communications
- Record keeping
  - Daily flight records
  - Aircraft tech logs
  - Defect recording & rectification

### **Flight instruction**

- Spraying operations
  - Selection & inspection of load sites, take off & landing approaches
  - Briefing of work area, boundary inspections, planning of work, fuel management
  - Operations on loading site, selection of loads, signals with driver

- Simulated spray operations, including drills for each stage of flight
- Advanced spray turns
- GPS operation & techniques
- Productive flying with work load being transferred gradually from the instructor to the pilot under supervision
- Bucket operations
  - Selection & Inspection of load sites, take off & landing approaches
  - Briefing of work area, boundary inspections, planning of work, fuel management
  - Operations on loading site, selection of loads, signals with driver
  - Simulated topdressing runs, including drills for each stage of flight
  - Effects of bucket on aircraft manageability
  - Productive flying with work load being transferred gradually from the instructor to the pilot under supervision

### **Flight times**

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