AAAA Policy Position UAS/RPAS/Drones

The concept of a 'level playing field' is critical to AAAA. There is simply no good reason why UAS operations should not be subject to similar licencing, competence, equipment and operational requirements as piloted aircraft.

UAS pesticide licencing could work in a simple manner to attain what is largely a level playing field between all aerial applicators.

1. UAS Pilot licencing:

    a. In keeping with the approach used for piloted aircraft, there are two broad elements of competence that need to be covered – competence in flying (CASA licencing) and competence in chemical application (EPA / State control of use agency licencing).

    b. Consequently, AAAA sees it as appropriate that if a pilot holds CASA certification/licencing for UAS operations, and then attains AAAA Spraysafe accreditation (ie the only chemical training available for aerial application – and already accepted by every State/Territory), that the State control of use regulator should be able to issue them with a licence.

    c. The level of competence for aerial application pilots will simply be higher than UAS operators because aerial application pilots are required to hold a Commercial Pilots Licence and an Aerial Application Rating and a Class 1 medical (although that is changing to permit Class 2 medicals) and are bound by a range of CASA regs that may contribute to improved safety (fatigue management etc). These 'additional' qualifications and competencies contain significant additional elements of risk management, human factors and application-specific training such as meteorology. This is an area where there is a capability or training gap that warrants additional discussion.

    d. The State control of use regulator may consider placing conditions on the licence to ensure equal regulatory coverage with piloted aircraft by specific mention of use of risk management, spray drift management, record keeping etc.

    e. In particular, AAAA believes that aerial application of pesticides should only be allowed to be conducted by a UAS operator when working under the direct control of a business as below.

2. UAS Business licencing

    a. In keeping with the approach used for piloted aircraft (except WA), UAS application should not be permitted without licencing coverage of the business overseeing the pilot and application.

    b. Consequently, AAAA sees it as appropriate that if a business holds CASA certification/licencing for UAS operations, then the State control of use regulator can use that as a basis for licencing if other conditions of licencing are met, including evidence that the business has in place relevant systems to manage the risks associated with aerial application.

c. This could be achieved in a number of ways:

   I. Negotiation of State by State licencing conditions covering systems etc and clarifying the application of existing regs to UAS ops (eg offences, record keeping etc)

   II. Use of the previously drafted National Operating Standards for Aerial Application developed through the PISC (COAG) process – covering drift management, spray quality and communications systems requirements.

   III. Use of the AAAA Spraysafe Business accreditation checklist – possibly amended to be more relevant to UAS ops. However, without a groundswell of UAS members, AAAA is not interested in undertaking any additional work that detracts from our focus on members.

There remains one significant additional gap, however, and that is the ability of UAS operators to provide scientifically valid assessment of their spray quality to ensure what is recommended on label (eg spray quality, water rates, buffers – leading to adequate coverage, efficacy and drift control etc) is able to be delivered in the field.

Piloted aircraft are able to use existing models (eg AgDrift / AgDisp / AAAA Nozzle calculator) that have been developed by the industry over previous decades, along with manufacturers' data and wind-tunnel research outcomes – to accurately predict spray quality in operational settings for existing fixed wing and rotary wing aircraft types. These models are used by APVMA – using 'typical' operating assumptions on aircraft type etc – to establish relevant buffers and spray quality on chemical labels.

These field-verified predictive models – while conservative and only valid to 800 metres - take into account near-wake effects of turbulent airflow on nozzle spray quality and provide confidence to regulators, registrants, operators and pilots that the platform is producing a known spray quality.

The same supporting material is simply not yet available for UAS operations and may require additional research (eg using CPAS at UQ Gatton) to establish whether there is any issue and if there is, the scope of it.

Placing a nozzle directly under a rotor producing a turbulent airflow at significant speed could theoretically lead to secondary shattering of droplets, with a subsequent 'fining' of the spectrum and consequent increase in drift potential. Manufacturer's data for most common ground nozzles is derived from testing with water+surfactant IN STILL AIR. That means it may not be what is happening under a rotor…

If the label says 'COARSE' then we need to be comfortable that the platform is actually producing 'coarse' in the field.

There is also an issue of slow forward speed of some UAS platforms leading to operations conducted lower than translational lift speed. Above translational lift, aircraft vortex sheets unroll and a helicopter performs in similar manner to a fixed wing from the perspective of vortices. Below translational lift, rotary platforms create a vortex ring that does not unroll, or only partially unrolls.

In turn, this could lead to increased entrainment of droplets, potential recirculating of spray, increased release height and possibly more drift. How much drift is the key question that needs

answering. UAS lower weight may also come into play to mitigate this effect but this is another unknown. CPAS at the University of Queensland may be able to assist with either expertise or establishing a field trial to remove doubt or identify issues.

There are additional UAS 'hardware' issues that may also need addressing. Issues such as suck-back, check valves and pump line security may be relevant when considering potential failures over a non-target are. Given current requirements for line-of-sight only ops and the potential ability of the UAS to operate only over the target area, this may be mitigated already…

In the longer term and based on additional research, there may be a case for the APVMA to actually undertake additional work in this space, or potentially to have a separate UAS registration process to put data on label, including buffers relevant to UAS ops. It may be the case that the proposed reform of the APVMA buffer system may be flexible enough to address these issues – see current discussion paper due for comments 29 March 2018. AAAA notes however that there appears to be an unconfirmed but pervasive understanding that if a chemical is registered for aerial application then it is registered for UAS application. This may also require formal legal confirmation.

ENDS