



# NEW ZEALAND AGRICULTURAL AVIATION

## SAFETY UPDATE

MARCH 2019

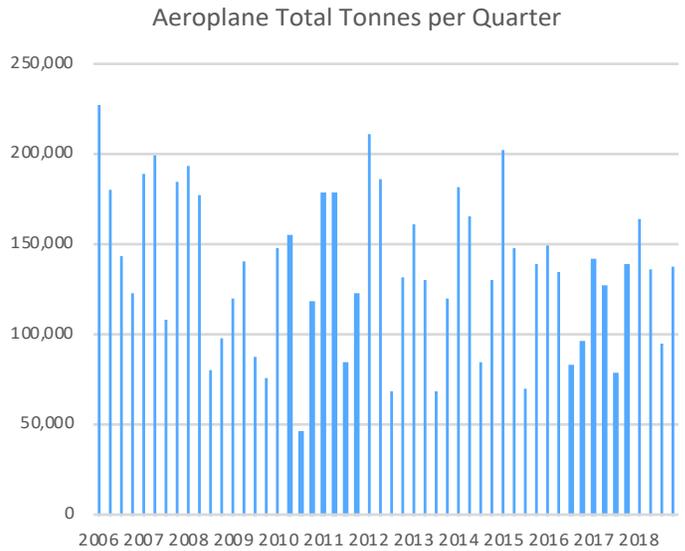
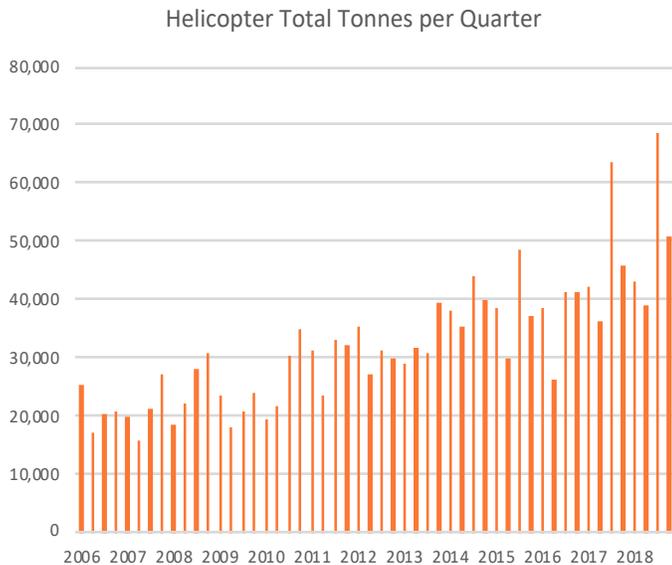


# INTRODUCTION

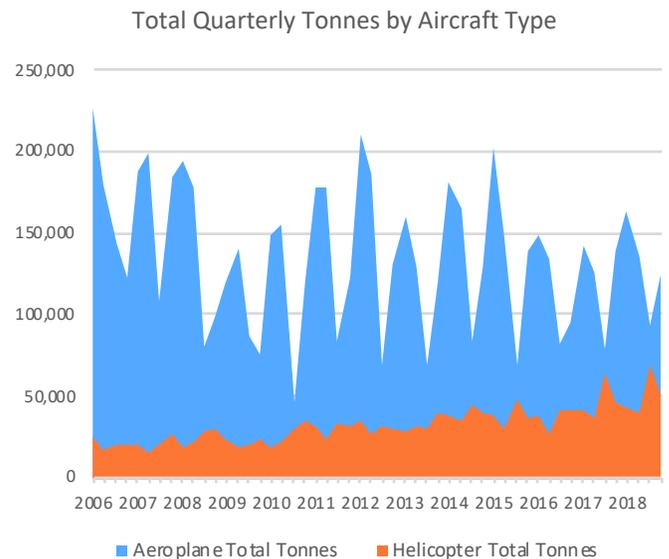
This is a another update on activity and safety in the agricultural sector, with activity and accident rate information current to the end of 2018. Like the previous updates it includes further details about accidents and incidents reported this year to date. If you have questions or comments about the information then please contact me at [Joe.Dewar@caa.govt.nz](mailto:Joe.Dewar@caa.govt.nz).

# AGRICULTURAL ACTIVITY

The agricultural product statistics indicate that overall sector activity has been slightly lower than in 2017. A total 732,000 tonnes of product were reported for the year, around 37,000 more than in 2017. Helicopter activity in quarter three continued its climbing trend particularly in the application of solid product, namely high analysis fertiliser.

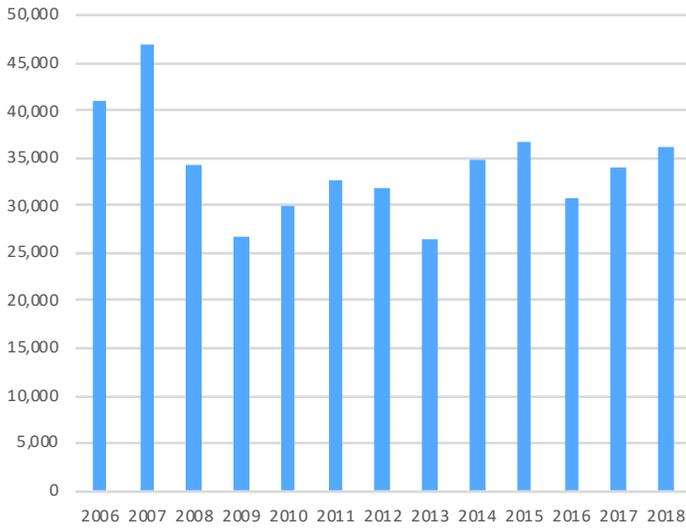


Helicopters continue to increase their share of the overall tonnage. The chart below tracks total quarterly tonnes by aircraft type over time. Helicopters' share of total quarterly tonnage has increased from around 10% in 2006/2007 to 30% in the last two year period.

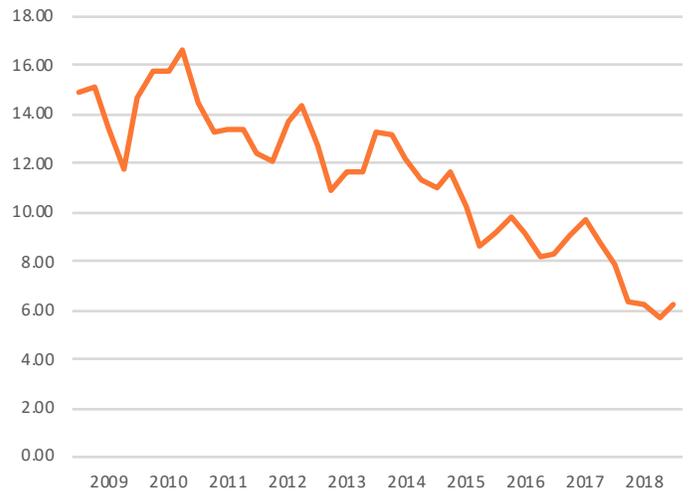


For reported agricultural flight hours, aeroplanes reported 2,000 more hours in 2018 than in 2017, while helicopters reported 13,000 more hours.

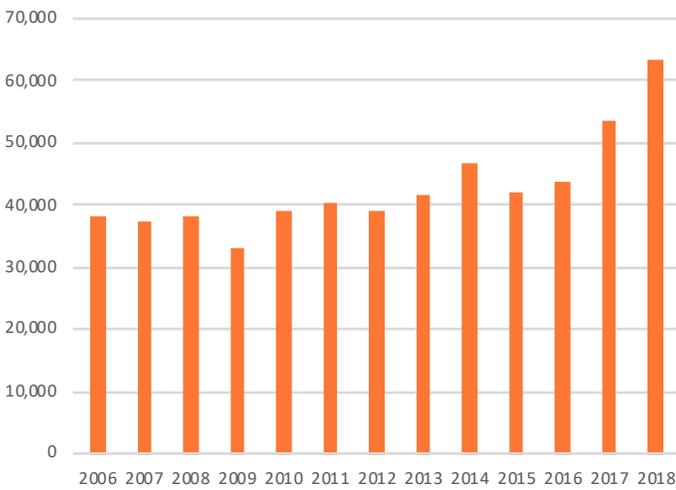
Aeroplane Ag Hours per Year



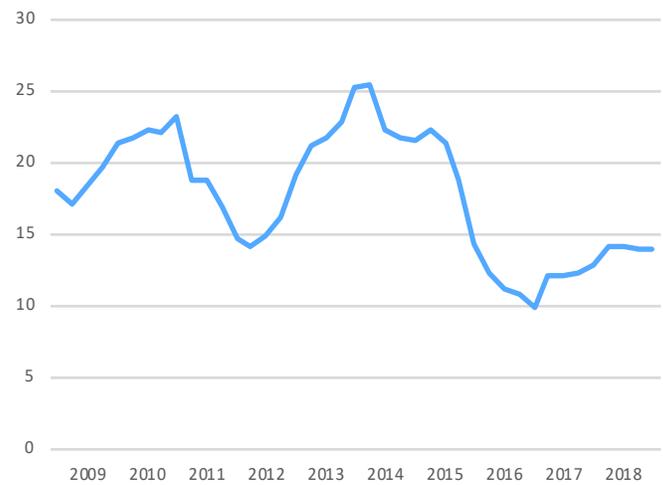
3-Yearly Accidents per 100,000 Hours - Helicopter Ag Operations



Helicopter Ag Hours per Year



3-Yearly Accidents per 100,000 Hours - Aeroplane Ag Operations



## SAFETY PERFORMANCE

From the beginning of 2018 to March 2019 there have been 8 accidents on agricultural operations. Five of these occurred on helicopter operations and 3 were aeroplane accidents. The 3-yearly accident rate for agricultural aeroplane operations sits at 13.88 per 100,000 hours; for helicopters the rate is 6.25 per 100,000 hours.

## ACCIDENTS IN 2018 AND 2019



January



East Coast



Cresco



Take off accident

The aircraft encountered sink on take-off just after getting airborne in light south east wind and hot humid conditions at 1200'ASL. This caused the tail-plane and elevator to strike a fence post at the airstrip threshold.



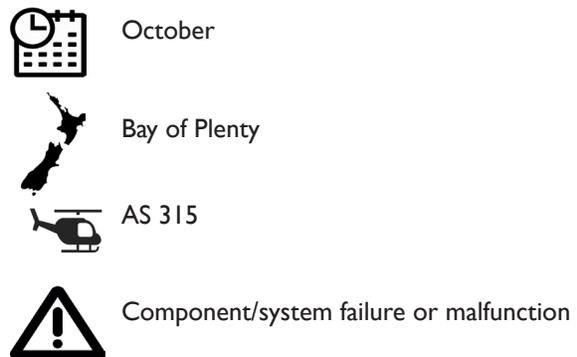
While turning during a sowing run the aircraft struck three 50Kv power lines which penetrated the leading edge of the left wing then broke. The aircraft remained airborne and dragged approximately 70m of power lines back to the operating airstrip. On landing the wires snagged on a fence and caused the aircraft to be dragged into a drain next to the airstrip. The aircraft was substantially damaged but the pilot was not hurt.



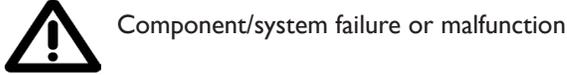
On an operation spraying a forestry block, during a turn coming back to start another spray line the helicopter struck a tree with the main rotor blade. The strike damaged one of the blades significantly and put the aircraft out of balance. The pilot landed the helicopter on an old forestry skid site a 100m away. Cloud cover and poor light were identified as key causal factors for the pilot not identifying the tree.



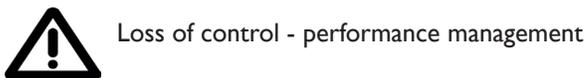
After touchdown, directional control was lost. The aircraft ground looped and incurred some rear damage when coming to rest down a slope on the edge of the airstrip after veering to the left. The investigation determined that the tail wheel spring securing bracket bolts had failed causing the rear spring to lose directional control of the aircraft, with the situation exacerbated by the slippery surface of the airstrip caused by dew.



During forest spraying operation, while applying power to lift with another load, at approx 40ft there was a loud bang from the engine, immediately followed by a loss of power. The pilot used the remaining rotor energy to reduce the rate of descent but landed heavily in the upright position. There was damage to the aircraft but no injuries.



The helicopter was engaged in a forest spraying operation and suffered an engine failure at approximately 300 feet AGL. The helicopter landed heavily on a forestry road and sustained substantial damage. The engineering investigation found that the engine suffered an internal failure causing the turbine assembly to move rearward, severing the Py sense line and shutting down the engine.



The pilot was spraying a field when he made a reversal turn to fly out a section of the relevant field. There was a puffing breeze at the time. As the helicopter turned downwind the low RRPM warning horn sounded. The pilot dumped the load and made a run-on landing directly ahead however a skid dug into the ground and the helicopter rolled over. The pilot was not hurt however the helicopter was substantially damaged.



During a pasture spraying the pilot lost situational awareness in relation to powerlines. The helicopter struck the power lines and fell to the ground.

## SAMPLE INCIDENT REPORTS



On lifting off for another load on a forestry spray operation the pilot failed to notice that the delivery hose had not been removed from the spray tank. Just prior to the helicopter reaching the point of nosing over into forward flight the pilot was notified of the attached delivery hose by radio communications from one of the ground crew. The operator has standard operating procedures to confirm that the hose has been removed from the spray tank prior to lift off. On this occasion the pilot did not check with the ground crew that the hose had been removed.

This occurrence was communicated to the company pilots and ground crew as a learning opportunity.



While spraying manuka the pilot dropped down a steep face and misjudged the distance of the tail rotor from a bush, the tail rotor made contact with the bush. The pilot flew directly back to the loading site and shut down the machine. Engineer inspected the blade and found grazing to the inner cord of the blade but no damage to the leading edge. Both tail rotor blades were replaced, and an inspection was carried out of the drive shaft, couplings, and transmission.



The operator reported that towards the end of a long day of spraying the loader driver connected the filler hose and then briefly discussed the performance of the spray gear with the pilot. After this they walked back to the mixing tank. Despite working all day with the policy of receiving a visual thumbs up signal before takeoff, the pilot lifted into the hover with the filler hose still attached. The loader driver was able to signal the situation to the pilot before they transitioned into forward flight.



The boot of the AS 350 B3 helicopter was left open during a spray load. The pilot left the boot of the squirrel open while getting some nozzles out of it. They noted in the report the need to close the boot if they ever walk away from it to minimise the chance of it being left open again. The operator has also now contained everything that was loose in the boot into a secured container.



During a survey flight for wilding pines the pilot noticed a slight increase in noise in the cabin of the aircraft. When they turned around they noticed the hear left hand door was partially opened. They landed immediately and latched the door. The investigation cited distraction due to a problem with a pump air lock as the reason for the failure to properly secure the door latch prior to flight.



December



Southland



R44



Collision/strike - tree

The pilot was engaged on a spraying operation over a steep hill face. During a boundary run the pilot's side of the spray boom struck a thick, dead-looking matagouri bush. The pilot felt a shudder through the airframe and saw the boom bend slightly backwards.

## WIRESRIKE UPDATE

There were two reported wire strikes or near-strikes on agricultural operations in 2018, and there has been one accident so far in 2019. The chart below shows total incidents and accidents per year, along with a 3-yearly average trend line fitted.

Wire Collisions and Near Collisions per Year - Agricultural Operations Only

