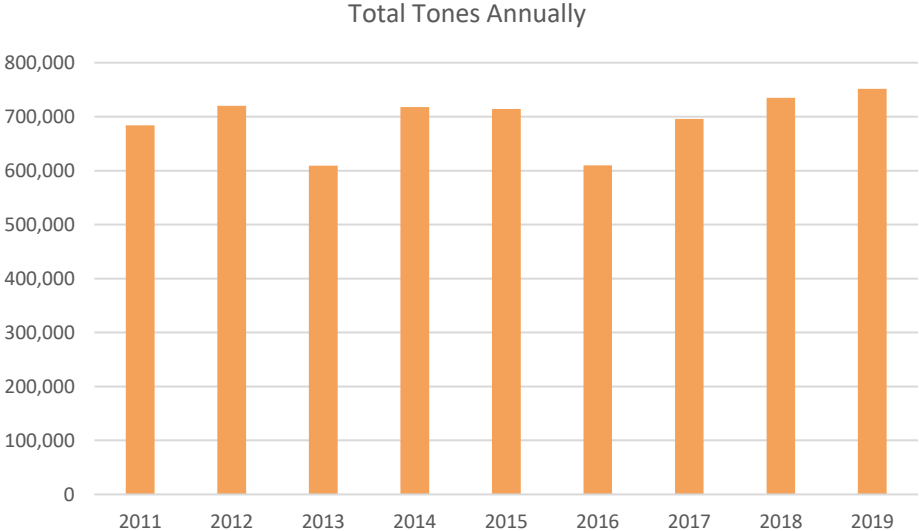


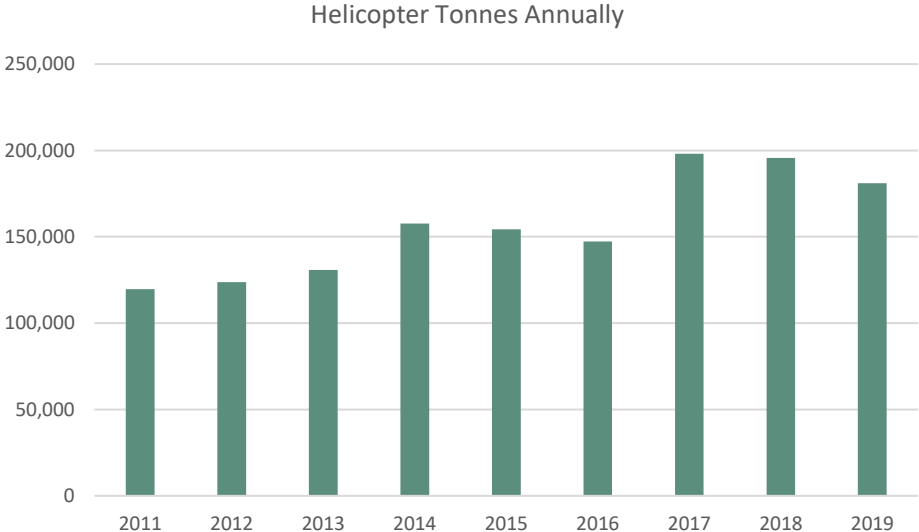
NZ Agricultural Aviation Update

Activity – Agricultural Product Statistics

Overall reported tonnes for the 2019 calendar year: 751,499. That’s 16,477 more tonnes than 2018.

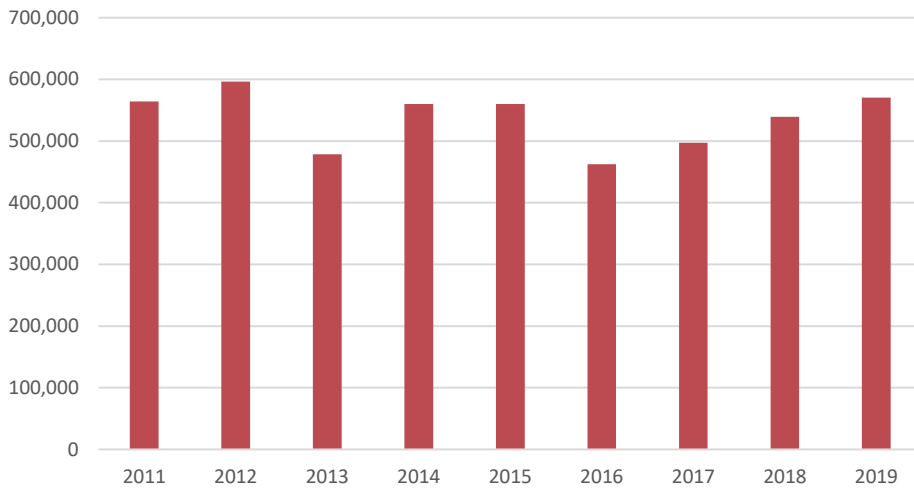


Helicopters reported 180,976 total tonnes – 14,694 fewer than in 2018.



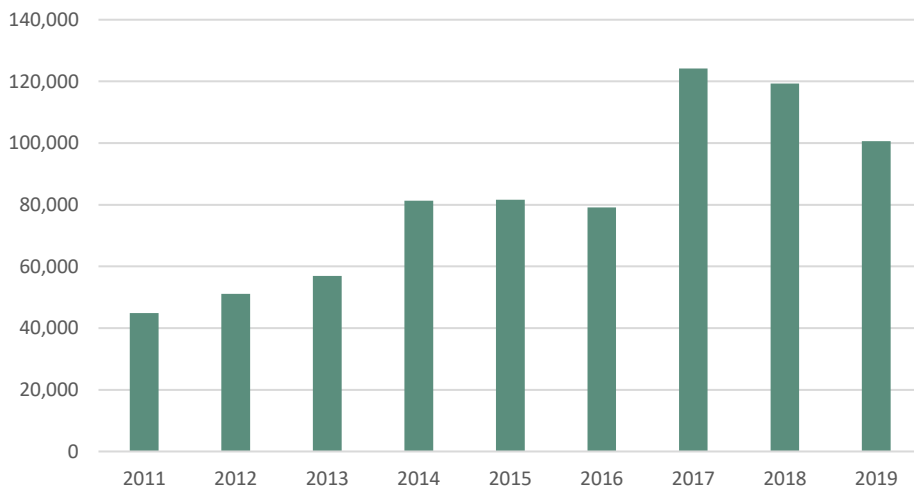
Aeroplanes reported 570,524 total tonnes – 31,140 more than in 2018. The increase was down to more activity in the first half of 2019.

Aeroplane Tonnes Annually

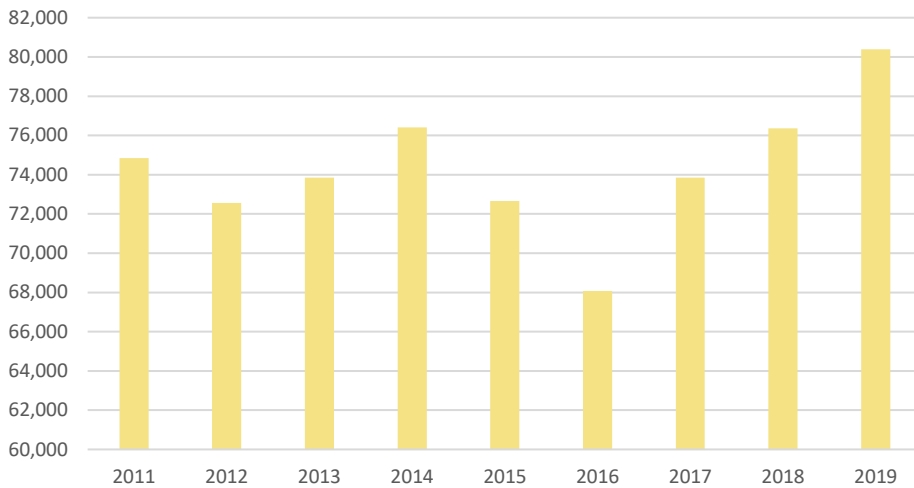


Looking at the split between product type-tonnes for helicopter operations, 100,581 solid product tonnes were reported in 2019 – 18,733 fewer than in 2018. 80,395 liquid tonnes were reported, 4,039 more than 2018.

Helicopter Solid Tonnes Annually

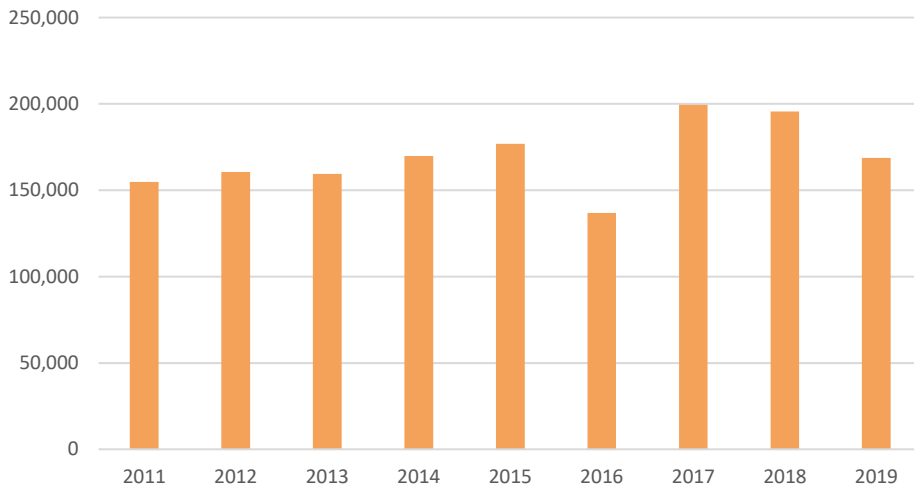


Helicopter Liquid Tonnes Annually

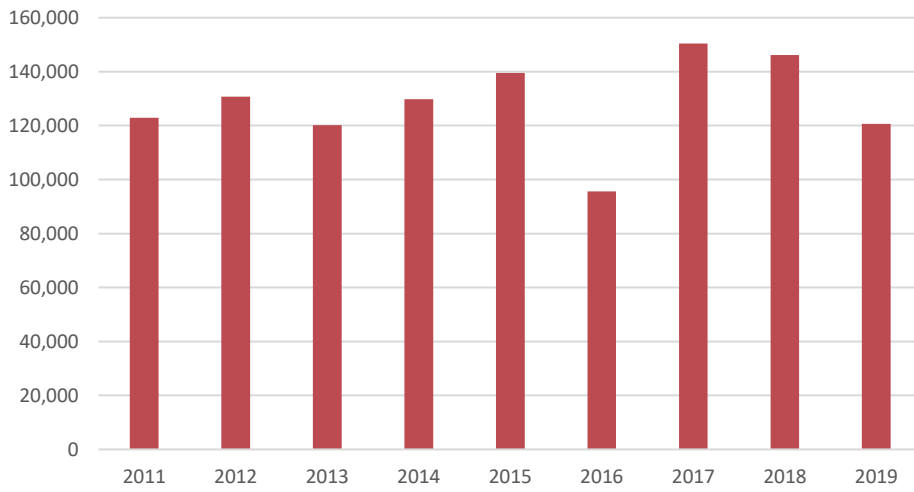


Weather and other factors clearly had an impact on operations in quarter 4. 168, 751 total tonnes were reported for the fourth quarter of 2019, 26,778 fewer than the fourth quarter of 2018. Aeroplanes reported 120,656 tonnes for the quarter – 25,551 fewer than quarter 4 of 2018. Helicopters reported 48,094 total tonnes for the quarter, 1,227 fewer than quarter 4 of 2018.

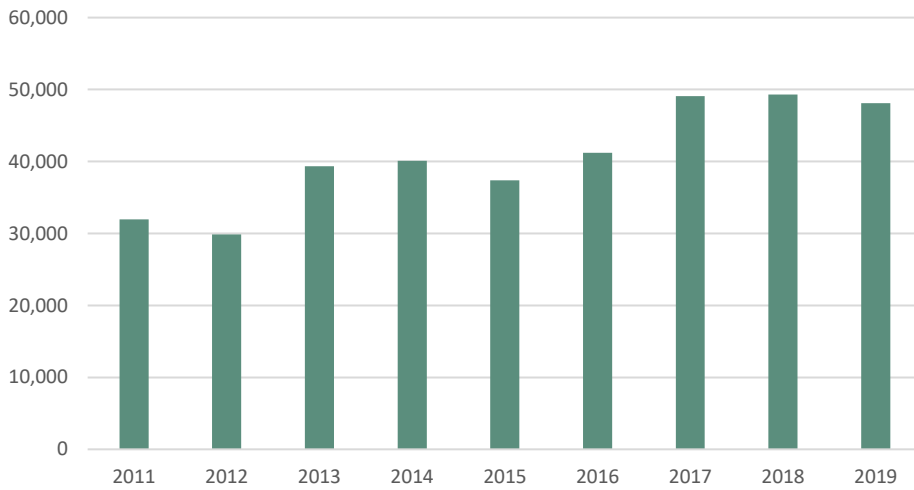
Total Tonnes Quarter 4 per year



Aeroplane Tonnes Quarter 4 per Year



Helicopter Tonnes Quarter 4 per Year

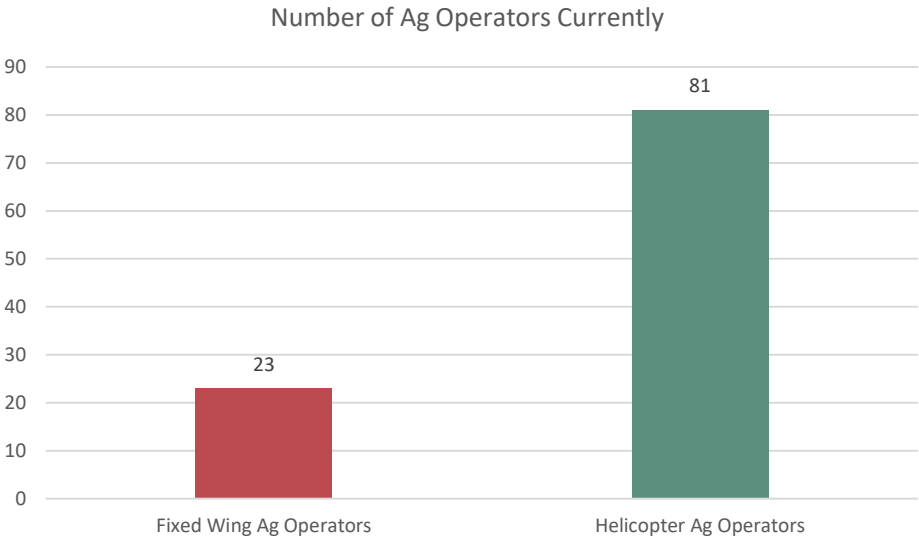


Activity – Agricultural Flight Hours

Due to limited resource and other pressures I am not able to prepare this data currently – my sincerest apologies for this.

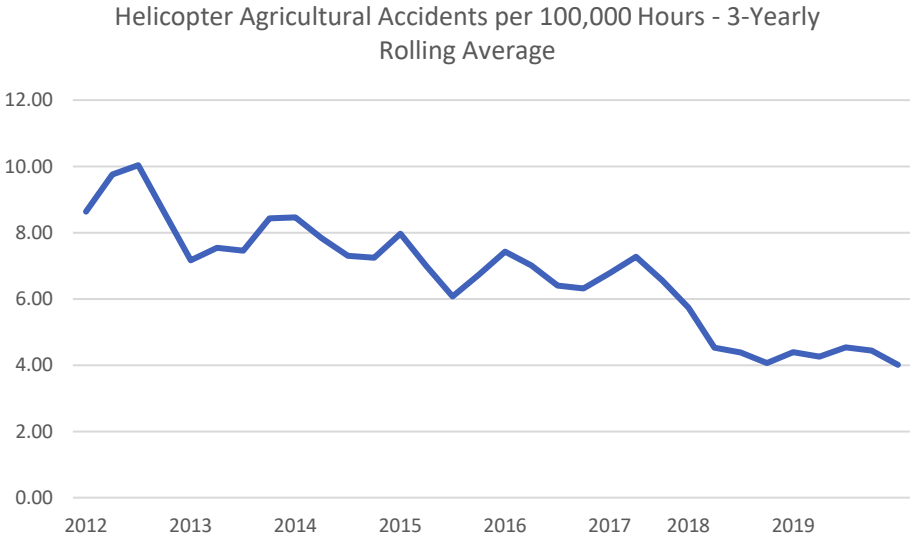
Sector Size Currently

Currently there are 23 fixed wing ag operators and 81 helicopter ag operators.

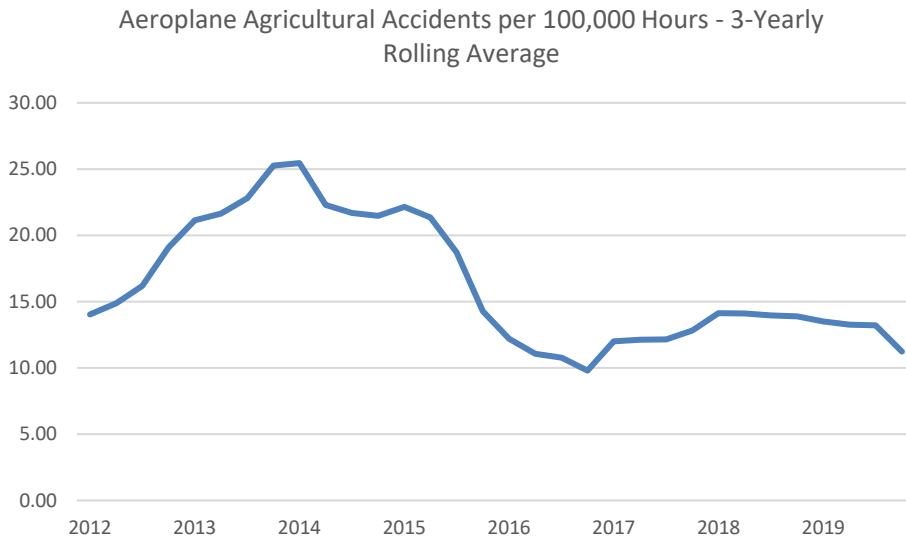


Safety Performance

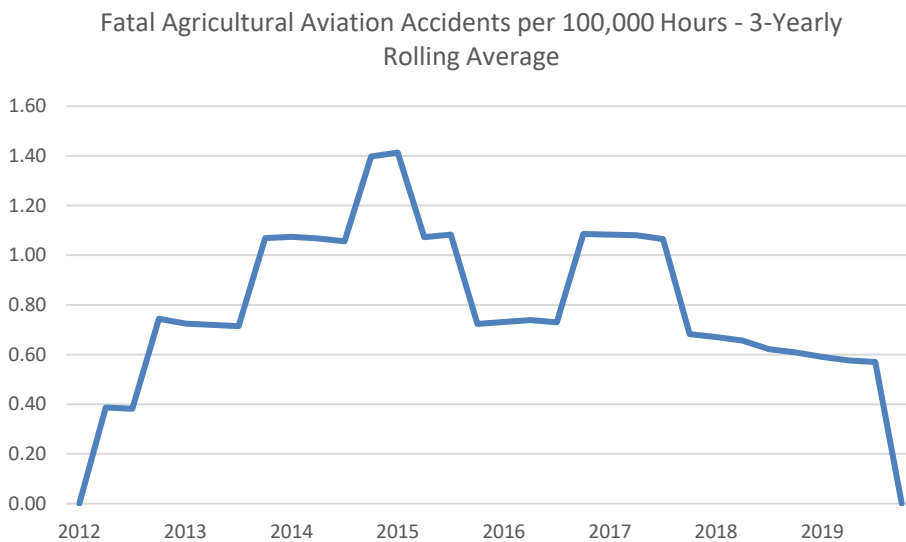
The agricultural helicopter accident rate (three-yearly accidents per 100,000 flight hours, quarterly rolling average) sits at 4.06.



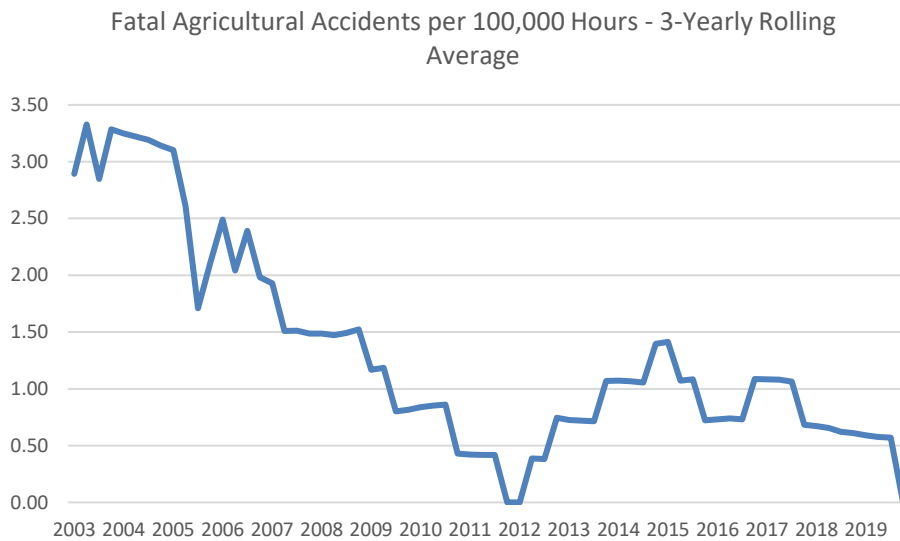
The fixed-wing agricultural accident rate (three-yearly accidents per 100,000 flight hours, quarterly rolling average) sits at 11.23.



Lastly, the overall fatal accident rate for agricultural operations has hit zero – the first time since 2012.



To put that into broader context, a longer-term time series for the rate is charted below.



Accidents

The chart above is positive, as are the recent downward trends for agricultural aeroplane and helicopter operations. But as you know, even though the management of the risks seems to be improving, the risks themselves aren't going anywhere. In the sections below you will be reading about recent accidents and serious incidents in the agricultural aviation sector.

There has been one agricultural aviation accident in 2020 to date.

Accident

January 2020

AS 350

The helicopter was operating at a site approximately 3570 feet AMSL, with a temperature of approximately 19°C. The helicopter refuelled, loaded product and departed for the spray site.

The pilot started to descend onto the spray site when the low rotor horn sounded. The pilot attempted to lower the collective and fly into a gap in the trees in an unsuccessful attempt to regain airspeed. In an effort to turn back to a clearing the main rotor blades contacted some trees, followed by the loss of tail rotor control. The helicopter began to spin and subsequently rolled over onto its side when it came in contact with the ground.

During the accident sequence, in an attempt to jettison the load, the pilot accidentally pushed the manual hook release button. This, coupled with the low height above ground, there was insufficient time to successfully jettison the load.

It is believed that the pilot misread the wind direction, essentially descending into the spray site with a tailwind.

It is really important that all agricultural helicopter operators read and understand this, and distribute the attached notice on Loss of Control – Performance Management.

Incidents

Reports received in late 2019 and in 2020 to date indicate a couple of key risk areas for agricultural operators.

Wire Strikes

Unfortunately these are trending upwards: three reports were received in December 2019. Safety management strategies around wire strike avoidance are well known. Please make sure that your crews are current and informed about these.

December 2019

Hughes 500

Wire Strike. During the first spray load of the day, at the end of a spray run an earth wire on a set of power lines came into contact with the helicopter skid. Flaring the helicopter to a hover as the wire broke at the power pole, the pilot was able to back away from the wire and land back at the load site. The helicopter was shut down and inspected for damage. Only some scratches were found on the skid fairings. All else was fine. Within 24 hours the helicopter was inspected and cleared by the aircraft maintenance contractor.

Control Jamming

Two recent reports have highlighted this. The issue is around agricultural product entering and building up around control systems, restricting full and free function.

January 2020

Fletcher

Returned to home airport following restricted movement in pitch during topdressing operations. Found elevator cable lower aft-most pulley jamming intermittently. Pulley removed and inspected, found dried "brick" of fertilizer hardened in pulley recess, subsequent cam effect causing cable to jam against keeper. Cable inspected and found bunched at contact point, cable removed from service. Further inspection revealed broken internal strands. Noted recess behind pulley filled with fertilizer.

February 2020

Fletcher

After landing back at base and plane shutdown, I noticed the control stick (in pitch) resisting and what sounded like a rubbing noise in the cables rear of the cockpit. The leather sealing sock had a hole worn in it which allowed enough fertilizer into the rear of the fuselage to fill the cavity of the lower elevator cable pulley bracket. This impeded the movement of the cable. The fertilizer was cleaned out and the sock was replaced.

Photo attached.



The operator reported this as the key contributing factors to the incident: Complacency while carrying out routine inspections is the most likely cause as it is an area that would normally be inspected during such inspections. Operational pressure could also have had a factor.

Follow up action has been taken with respect to this and the importance of following inspection schedules carefully has been highlighted.

Weather Conditions

An incident reported late last year highlights to ever-present risk of inadvertent IMC.

November 2019

Hughes 500

While on a ferry flight for an agricultural operation the pilot encountered cloud conditions which prevented further flight north-bound. The pilot executed a 180° turn to return to the hangar which was approximately 2nm south. Exiting the turn, the aircraft climbed into IMC conditions. The pilot's report noted that poor decision making lead to them climbing for a visible gap in the cloud rather than lowering below the cloud base. Disorientation quickly set in. The helicopter exited the cloud in a nose-down attitude approximately 200ft above the ground. The pilot quickly regained control and the aircraft was landed in a flat paddock.

I contacted the pilot, and I will include his critical safety messages below in full:

I have always be very cautious around cloud conditions.

The incident highlighted the lack of currency on both how to react if encountering IMC, and in using aircraft instruments.

It also highlighted just how hard it is to transition onto instruments in a situation of duress.

The saving grace was that the cloud wasn't to the ground. When I became visual, while I didn't have a lot of ground clearance, instinct took over and I performed a spray (reversal) turn away from the ground, and landed, shaken but safely.

Lessons learned.

Don't be too casual around cloud. I failed to prevent the aircraft climbing after the 180 degree turn, and entered the cloud. Making the wrong decision to climb for a gap instead of descending then put me into IMC.

Pilots need to maintain currency on how to react to IMC conditions and use of instruments.

This needs to be done regularly with annual FCCC, ag checks, or BFR's.

I believe I complied with met minima up until the final moments, and have always been conscious of doing so.

Pilots need to stay current with relevant met minima, keep situational awareness, and have strong self evaluation.

Hold yourself to a high standard, go home happy with decisions you have made to stay safe. Don't go home angry with yourself for making bad decisions, or worse yet, not getting home at all.