Agricultural Aircraft Activity Examples

The agricultural aviation industry in NZ supports agricultural production, weed and pest control, biosecurity, and biodiversity. The following examples detail the number of aircraft movements that may be required to undertake these activities. The examples demonstrate that external influences, often outside the control of the stakeholders, result in ad hoc operations that cannot be forecasted.

1. Aerial Activity Supporting Agricultural Production

These examples are activities undertaken annually on typical NZ farms to enhance and support agricultural production. External influences outside the control of the farmer and the aerial operator will often determine the timing of application that include:

- The condition of airstrips e.g., are they dry enough to operate from safely
- Local weather conditions i.e., are weather conditions conducive to safe application
- Seasonal variations in growth conditions
- Farm profitability

Additional on-farm aerial activity can be expected in response to:

- Unforeseen disease outbreaks such as funguses and insects
- Pest outbreaks such as rabbits and wallabies
- Adverse weather events that require land remediation e.g., re-establishing pasture following floods, slips, fires, and droughts
- Changes in land use requiring more intensive inputs such as fertiliser & land preparation e.g., establishing plantation farm forestry

NOTES:
#1 a typical cost-effective aircraft appropriate for the size of the job
#2 a take-off and a landing denote 2 aircraft movements

250-hectare Dairy Farm

Activity	Description	Application rate	Typical aircraft load capacity (NOTE 1)	No. aircraft movements (NOTE 2)
Nitrogen application - helicopter	125 ha's	120 kgs/ha	700 kgs	42
Nitrogen application - helicopter	20 ha's winter crop	150 kgs/ha	200 kgs	30
Insecticide application - helicopter	20 ha's winter crop	100 lts/ha	200 lts	20
Weed spraying - helicopter	125 ha's thistles	60 lts/ha	400 lts	38
Insecticide application - helicopter	125 ha's Porina caterpillar	50 lts/ha	400 lts	32

1500-hectare Hill Country Farm

Activity	Description	Application rate	Typical aircraft load capacity (NOTE 1)	No. aircraft movements (NOTE 2)
Lime application - fixed-wing	375 ha's (25%) of farm per year	1,000 kgs/ha	2,000kg	375
High analysis fertiliser application pre-lamb - fixed-wing	375 ha's (25%) of farm per year.	100 kgs/ha	1,300kg	58
Nitrogen application - helicopter	60 ha's winter crop	120 kgs/ha	700 kgs	20
Weed spray application - helicopter	60 ha's winter crop	100 lts/ha	400 lts	30
Insecticide application - helicopter	60 ha's winter crop	100 lts/ha	400 lts	30
Weed spraying - helicopter	30 ha's gorse/broom	400 lts/ha	800 lts	30
Hill country development - helicopter	30 ha's scrub	400 lts/ha	800 lts	30

400-hectare Pastoral Farm

Activity	Description	Application rate	Typical aircraft load capacity (NOTE 1)	No. aircraft movements (NOTE 2)
Lime application - fixed-wing	100 ha's (25%) of farm per year	2,000 kgs/ha	2,000kg	200
High analysis fertiliser application - fixed-wing	400 ha's (100%) of farm per year	100 kgs/ha	1,600kg	75
Nitrogen application - helicopter	20 ha's winter crop	120 kgs/ha	200 kgs	24
Weed spray application - helicopter	20 ha's winter crop	100 lts/ha	200 lts	20
Insecticide application - helicopter	20 ha's winter crop	100 lts/ha	200 lts	20
Weed spraying - helicopter	15 ha's gorse/broom	400 lts/ha	400 lts	30

2. Aerial Activity Supporting Forestry Production

The following example is typical activities undertaken annually in NZ plantation forests to enhance and support production. Weather patterns outside the control of the forester and the aerial operator will usually determine the timing of application.

The amount of activity depends on the quantum of forest holdings which varies from region to region, and the age classes of the trees within individual forests. The example below details a typical mixed-age class plantation forest in a region such as Canterbury that would be part of a forest portfolio owned or managed by a forestry company.

Additional activity can be expected in response to:

- Disease outbreaks such as funguses and insects e.g., Dothistroma needle blight. Some regions experience outbreaks annually therefore undertake control annually
- Adverse weather events that require remediation e.g., re-establishing plantations following fires, extreme wind events and snow damage

6500-hectare Plantation Forest

Activity	Description	Application rate	Typical aircraft load capacity (NOTE 1)	No. aircraft movements (NOTE 2)
Pre-plant spray preparation of land following logging - helicopter	300 ha's	150 lts/ha	800 lts	112
Release spray of planted seedlings – helicopter	300 ha's	200 lts/ha	800 lts	150
Boron fertiliser application – helicopter	80 ha's	60 kgs/ha	700 kgs	14

3. Aerial Activity Supporting Biosecurity

This is an example of typical activities undertaken to support OSPRI in the eradication of Bovine TB using aerially applied 1080.

In terms of application, suitable weather patterns outside the control of the OSPRI and the aerial operator will determine the timing of the application which will be concentrated over a relatively short period of time with multiple helicopters (1 – 2 operational days).

Generally, there are 2 applications. 1 pre-feed application, and 1 toxic application several days later both requiring a period of dry weather post-application.

The amount of aerial activity will depend on the TB status of a region, ease of access to land for alternative control methods, and the scale of the treatment area thus aerial treatments often involve large tracts of land, however, there is no "typical" treatment area.

The level of infection in NZ has been dramatically reduced over recent years with many regions being TB-free, however, isolated outbreaks do still occur in TB-free areas and OSPRI is quick to respond to ensure containment and eradication. The example below details an aerial treatment area that encompasses both private and public land.

16,500-hectare Treatment Area

Activity	Description	Application rate	Typical aircraft load capacity (NOTE 1)	No. aircraft movements (NOTE 2)
Pre-application of 1080 pellets - helicopter	16,500 ha's	2 kgs/ha	700 kgs	94
Toxic of 1080 pellets - helicopter	16,500 ha's	2 kgs/ha	700 kgs	94

4. Aerial Activity Supporting Biodiversity

The following example is typical of activities undertaken to support the Department of Conservation in the eradication of predators in native forests using aerially applied 1080 under the umbrella of the Battle for Our Birds (BfOB's) campaign and/or the Predator Free 2050 program.

In terms of application, suitable weather patterns outside the control of DOC and the aerial operator will determine the timing of the application which will be concentrated over a relatively short period of time with multiple helicopters (1 – 2 operational days) over large tracts of conservation land.

Generally, there are 2 applications under the umbrella of BfOB's - 1 pre-feed application, and 1 toxic application several days later both requiring a period of dry weather post-application.

The amount of aerial activity in any given year will depend on the level of predators in an area that is often dictated by a "Mast" event (availability of food for predators to multiply) coupled with additional biodiversity values such as the level of threat to endangered species.

Under the Zero Invasive Species (ZIP) eradication programs generally, there are 4 pre-feeds and 2 toxic applications involving higher overall application rates from multiple helicopters.

30,000-hectare BfOB's Treatment Area

Activity	Description	Application rate	Typical aircraft load capacity (NOTE 1)	No. aircraft movements (NOTE 2)
Pre-application of 1080 pellets - helicopter	30,000 ha's	1.5 kgs/ha	700 kgs	128
Toxic of 1080 pellets - helicopter	30,000 ha's	2 kgs/ha	700 kgs	172

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Price change effective 15 June 2022

Last week Mark Wynne, our CEO, gave a market update on the global supply of nutrients and the impact that this is having on our prices in New Zealand. The key things that are impacting prices are energy costs, export controls in China, and the continuing situation in Ukraine. We were able to buffer some of these increases through autumn, however, we now need to adjust our prices to align with our rising costs.

As outlined below, there are a number price changes effective from tomorrow. Our procurement strategies (alongside our local Kapuni manufacturing) mean that we are in a position to give you certainty with your feed budgets through the start of spring. **Our new SustaiN and Urea price will not increase again before September 30th 2022.**

- SustaiN increases by $90/T to $1,379/T
- Nrich Urea increases by $90/T to $1,330/T
- Nrich SOA increases by $185/T to $897/T
- PhaSedN increases by $180/T to $995/T
- SuperPlus increases by $120/T to $499/T
- SurePhos increases by $120/T to 514/T
- Serpentine SuperPlus increases by $100/T to $470/T
- Sulphurgain 30S increases by $140/T to $590/T
- MOP increases by $260/T to $1,350/T
- DAP increases by $365/T to $1,795/T

We will continue to monitor the market closely and update you as we head towards spring. Our focus remains on ensuring you have a consistent and reliable supply of nutrients to help you farm productively and sustainably. If you have any questions, please contact your Nutrient Specialist or our Customer Services team on 0800 222 090.

Jason Abbott
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