

AGRICULTURAL AVIATION AT THE CROSS ROADS

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Thank you for the opportunity to present this address in my home district, from where I started my business career in aviation in 1949.

The 34 years have been eventful, stimulating and satisfying, particularly when it has been said so many times that the agricultural aviation industry has been the single most important development in post war years, in arresting the lost production from New Zealand hill country. The main contribution to the three-fold increase in stock unit numbers has been the service provided by the aviation industry. It is a record that we, who created it, and spent our working lifetime on, can be justly proud.

The Beginning

Trials were done by the RNZAF on behalf of the Soil Conservation and Rivers Control Council carried out at Ohakea, Masterton and Raglan using a converted TBF Avenger Torpedo Bomber, The payload of one ton was carried in a modified fuel tank in the aircraft bomb bay. The aircraft was directed over the target area by radio equipment, with markers spacing out where each swath was to be laid. The width of the swath, the extent of the drift and the type of material that could be accurately dropped was established, The tests proved that aircraft could spread fertiiser with acceptable accuracy for the massive undertaking being planned.

Two approaches were recommended by the Soil Conservation Council →

- a) There were those who believed it was a national undertaking and should be done by the RNZAF as a Government subsidised operation using major airports and aircraft with capacity in excess of 5 to 10 ton payloads.
- b) The other group led by the then Director of Civil Aviation, Mr E.A.Gibson, promoted private enterprise working from airstrips built on the farm property.

In the case of the RNZAF two Bristol Freighters were converted in England to carry 6 tonnes in three 2 ton hoppers. Trials were carried out in Wales in 1951-52. While these aircraft were being built the private operators made their start using Tiger Moths carrying 540 lbs. By the time the Freighters were ready for service there were approximately 50 Tiger Moths at work or undergoing modification with the result that the plan for a military-like national operation was abandoned.

The Tiger Moth which was available on the surplus market was by no means an ideal aircraft but at least it was available at a price we could afford. The official payload was 360 lbs but the load commonly carried was 540 or three 180 lb bags. History tells that the third bag which was considered to be all profit, was inevitably the one that caused failures in take off, or stall in turn, or resulted in being caught up in fences or trees, a regular feature of the operation. Most of us learned the hard way while many never learned at all.

In the first five years a number of new aircraft entered service -Piper 150HP, Cessna 180, Agricola, Percival P9, Beaver, Taylorcraft, Aerovan, Auster, Lodestar, DC3 and Fletcher. With the exception of the Beaver, Fletcher and DC3 none of the aircraft used in 1955 are still in service. There were almost as many loader

types as there were aircraft, From equipment designed to load from bags of 180 lb man handled in the hopper we moved to equipment designed handle bulk material. Tractors with front rear end attachments and ex-army vehicles were commonplace. Heath Robinson would have been proud of the many and varied contraptions that lined up on the farm with the aircraft.

From unprepared paddocks and ridges we moved to better airstrips, many of which cost farmers many thousands of dollars. There are now over 10,000 airstrips in service.

Further Developments

With a prosperous and dynamic agricultural aviation division in the general aviation sector the building of a total aviation industry was possible. It was the cornerstone on which the whole general aviation was to be built. At its peak over 130,000 hours were flown by fixed wing and rotary wing aircraft per year.

Some of the benefits of a viable agricultural aviation operation have been the pooling of resources by operators in the manufacture of Fletcher aircraft and the development of new variants. The Fletcher has gone through major changes since its introduction from engine power of 225 HP → 240 HP → 260 HP → 285 HP → 300 HP → 400 HP, plus the turbine, installed → 500 to 700 HP. The pay load has increased from 1150 lb over the 25 years to 3850 lbs and the productivity has multiplied at least four times the original aircraft. We expect it to operate at 4000 lbs. The early conversions were designed to provide an aircraft with better HP to weight ratio and a safer more productive aircraft. Each increase in power gave approximately 15 - 20% increase in productivity. The benefits were shared with the farmer, by us holding down costs, and at the same time improving profitability.

The tremendous increase in cost from 1977 onwards required a much greater lift in productivity if we were not to price ourselves out of the market in the latter part of 1980. In the case of the turbine just entered service, we set out to increase productivity by 60% over the 400 HP version. Since entering service the aircraft has exceeded the designed capability and is producing twice the capacity of a 400 and in some cases in exceptional long hauls and climbs, 2.5 times its predecessor.

The Fletcher is one of the finest agricultural aircraft ever built. Few types have had as long a history in service. Number one is still flying after 28 years. Constant development and improvement have maintained its competitiveness throughout its life.

What were the factors that motivated the agricultural operation in New Zealand to adopt a designed aircraft such as Cresco. There are many —

- The Industry has accepted the principle, that the Air Service Licensing Authority's existence is not designed for operators to make profits, but rather to give some rationalisation to the capacity of aircraft and to encourage the development of ways and means to reduce costs to the farmer.
- It is based on an acceptance of responsibility to the user and the country.
- This has meant a continued updating and improvement of our equipment to meet rising cost and hold charges. Planning for the next move has in many cases been in place before the last decision has been implemented. This was particularly so for the Cresco.
- The factors were the rapidly increasing cost of avgas, increased cost of the aircraft then in use, the FJ950 400 HP, large increase in overseas imported

Parts, engine Props etc, very high cost of ground support equipment, and the Continuing escalation of wages and salaries.

Our basic requirements were

- to lower the breakeven hours
 - to provide an aircraft capable of operating in high country and very long hauls
 - to lower cost to the farmer
- to provide an adequate return on capital.

The theoretical aircraft needed to produce 60% greater output than the present and to cost no more than twice the current aircraft. (All previous increases were 15-20%). The design met the requirements leaving only our faith in the future to consider.

The projections provided to the Industry were therefore a vital factor before launching into a \$1,000,000 development programme. We were led to believe that a lot of the growth to come was in the 2-3500 feet altitude area which had received little attention to date. A level of demand of no less than 1,000,000 tonnes of fertiliser was required for maintenance, and there would be a considerable increase in the use of lime (spread at 3 to 4 times as heavy as fertiliser).

The soil conservation programme was dependent on fertiliser, and these were matters of concern beyond those of the land owner. Retaining stable country in the hills ensured higher production on flat land free from the immense damage suffered through silting and flooding. For the agricultural industry in the late 1970's, when we were planning the equipment we needed for the 1980's, the future seemed assured.

The Corporate Structure

What constitutes the corporate structure of a company such as James Aviation and the top five companies in agricultural or general aviation?

They all had built businesses based on a fleet of agricultural aircraft flying an average of approximately 750 hours per year being updated every five years with new engines and higher pay loads. To achieve these hours a management structure had evolved over the years. The structure of most large agricultural aviation companies would be based on an average of 3.75 to 4.5 people per operating aircraft depending on how widely spread the operation was. These are made up of a pilot, driver, engineer, transport maintenance, accounts, general administration, pilot training and safety, etc. The overhead on each aircraft represents approximately 20% of the cost of breakeven. This structure has served the Industry well. It has improved safety, utilisation, serviceability and satisfied the financial objective of the company. Special pilot selection and training totally dedicated to improved safety have reduced incidents and accidents to a minimum.

The business structure is dependent on the fleet having not less than 600 hours utilisation per aircraft. To maintain this the Industry has followed a practice of curtailing fleet capacity in bad times, by withdrawing a unit consisting of two trucks, one aircraft and crew from service and spreading the work over the remaining units. Looking back over the history of the Industry we find that approximately every 5-7 years since its inception we have experienced a downturn which has reduced demand for brief periods for as much as 50%. The period has seldom exceeded 18 months, In the early years overall growth had the effect of hiding the problem but now with zero growth and in fact a steady decline, the impact on a company is serious and cannot be sustained without major surgery of the company structure. Through the same period 1978-83 the costs have soared making it almost impossible to maintain a viable operation,

What of the Future Changes

The cornerstone of the Industry has been the capacity control maintained by the Air Service Licensing Authority. This has so weakened, as a result of complicated methods of circumnavigating the purpose of the licence by pirate operators, that today 10% of the aircraft fleet are outside the licence. These aircraft are generally introduced by a pilot with a grievance or who is surplus to the Industry. The fine balance of fleet capacity to work is now seriously affected by over capacity and reduction in demand.

General aviation, and agricultural aviation in particular, has existed in much the same form for 35 years and like the transport business is having to readjust and regroup its resources, These changes are being made much more difficult with a virtual slump in demand for aerial services. The changes will be more in the corporate structure in the immediate future than in equipment. They will be worsened by Government policy to abandon control of the numbers of aircraft licensed to operate.

Some of the influences which will bring about change are —

- a) The changes in legislation reducing the effectiveness of the Air Services Licensing Authority control over the Industry.
- b) Decrease in utilisation through excess capacity
- c) More selective demand by farmers when fertiliser is spread (seasonal demand)
- d) Concentrated high analysis fertiliser reducing tonnage to be sown. In the long term this could be false economy.
- e) High cost of aircraft and spares, high cost of ground support equipment, loader tankers, spray equipment, etc.
- g) Environmental considerations (use of agricultural chemicals)
- h) Loss of confidence by many farmers in the viability of hill country farming
- i) Conflicting national views being expressed by the economist, agronomist, departments and Government on the long term future of hill country farming
- j) Inability to service the capital employed.

To understand the change we are now facing we must study the past, in particular the influences that gave rise to the spectacular growth of agricultural and general aviation in the first 20 years of its post war existence.

Probably the most important would be the economic and political influences affecting New Zealand in 1945 and onwards. Ten years of stagnation through slumps and war commitments had left a vacuum for the opportunist using new technology. For those with an interest in aviation the time was never better. The influences in the rural scene to the acceptance of agricultural aviation which became the backbone of general aviation were —

- a) the deep concern of farm leaders in the accelerating deterioration in production from hill country farming over the preceding 20-30 years.
- b) The enormous damage being suffered through soil erosion in the hill country throughout New Zealand.
- c) The work of the Soil Conservation and Rivers Control Council pointing to the solution, i.e. increase fertility, improve grass strains and stock management, tree planting etc.
- d) The availability of money from the Meat Producers Board and Government on extremely favourable terms,

The other vital factors were —

- 1) A considerable number of young wartime trained personnel, pilots, engineers, etc. who were looking for an opportunity to build their future in aviation.
- 2) A surplus of aircraft and spares at giveaway prices suitable to pioneer the Industry.
- 3) Farmers who had been receiving excellent prices for products and who were willing to participate in the development of the Industry.
- 4) A grave shortage of farm labour.
- 5) Favourable taxation benefits for both the farmer and the aviation Industry.
- 6) The overwhelming support of Government, fertiliser manufacturers, Government Departments and the national farmer organisation in promoting the Industry.

Aviation is a team effort, pilots, engineers and administration working as one person for the ultimate success. It has not been easy, but it has been stimulating and challenging,

From the political point of view we are aware of a vocal minority lobby group in Federated Farmers who believe that open competition must apply to all farm services if costs are to be reduced. The Industry would have less than 500 people in agricultural aviation, so from a political standpoint we count for nothing and are therefore unable to bring sufficient pressure to bear to have our view point considered. If this is the way both farmers and Government see the licensing of the Industry then it is equally important for the investors in aviation to gauge their future in the changing environment which will follow the changes being implemented.

We have three responsibilities —

- 1) To the shareholder and investor
- 2) To the staff who serve the Company
- 3) To the clients who we have serviced for many years.

It is my opinion that there are few Industries that have been developed post war who have serviced the national interest better than agricultural aviation. It is a pity that politicians have to meddle with a licensing system that has been an example to other agricultural aviation nations. My deep concern is that all that has been achieved by consolidation into companies with sufficient capacity to purchase the new generation agricultural aircraft designed specifically for New Zealand's demand is not lost. I believe what has been planned for Air Service Licensing by Government will prove to be a grave error of judgement based on political consideration and not on logic for our Industry. The cornerstone of a stable general aviation division will be affected and have long term implications for apprentices, engineers and executive staff dedicated to this section of flying.

The Future

With the open sky policy proposed by Government in its new legislation a major change can be expected in the present structure of the large companies. This combined with higher cost fertiliser being spread in a more selective way on marginally economic hill country farms, one can expect the pattern of sowing to change to a seasonal demand and a permanently low utilisation. The difficulty in obtaining a satisfactory utilisation will become worse making it almost impossible for a corporate operation to compete with the single aircraft owner type operation.

The Company has a plan which is designed to safeguard all interest the best way we possibly can. The structure of a Corporate Body will be substantially dismantled and the many support services that were part of it will be abandoned. We will follow the Road Transport Owner operation and be free to administer the operation independent of the many restrictions that apply to a company.

It is difficult to see the long term effect of the change. In the past each improvement to aircraft has required additional tonnage to maintain profitability. To contemplate these aircraft to replace older machines has been done in the past by rationalisation within the fleet. My concern is how to introduce these very effective and costly aircraft in the future and at the same time see an increase in the numbers of operators all fighting for a greater share of a diminishing and very seasonal tonnage to sow. I have felt very strongly that we have an existing system that has served the operator, farmer and aviation in general well and therefore see no advantage in change to an open sky policy which can only cost more in the long term. The withdrawal of capital from the industry is already underway.

It is said that nobody is so blind as he who does not wish to see and that is the sad facts of the case. We are now and in the future committed to utilising aircraft at approximately 50% of their capability. With new aircraft costing up to \$600,000 a unit capable of lowering or holding the cost to the farmer if fully utilised, it is hard to see a licensing system succeed which creates a business environment that makes the financial risk too great to undertake.

In closing may I say how much I have appreciated the support and encouragement given me over the 34 years in building James Aviation into a company which has been spoken of as the largest applicator of fertiliser in the free world. It has been made possible by the understanding and support of many people and the loyalty and dedication of an outstanding staff.