DBS Evolution

Ausplow Farming Systems History (The DBS)

John Ryan AM has been directly involved in the development of agricultural mechanical systems for more than 40 years. He is a nephew of the renowned Percival Yeomans, who developed the first deep cultivating plough in the early 1950s.

He gained intimate knowledge of soil agronomy through Percival Yeoman’s Keyline Farming concept, which is a system of farming on the contour, still used today to create efficient use of water and prevent water erosion.

John designed the first Agrowplow deep tillage machine in 1977, and in eight years to 1985, 4000 models had been sold throughout Australia.

The Agrowplow is widely acclaimed as an important contributor to soil conservation and soil fertility because it breaks soil hardpans and allows roots to seek moisture deeper in the soil profile. Deep tillage achieved by the Agrowplow has both assisted in the build-up of humus at depth and led to increases in crop yields and financial returns.

In 1986, Ausplow Farming Systems in Western Australia was born and, due to cutting edge precision seeding technology and soil conservation, has grown into one of the most innovative businesses in WA. The first venture was to design the Ausplow Deep Tillage machine, which immediately became a popular seller in WA and later throughout Australia, rivalling the Agrowplow John first designed in 1977.

Prince Philip Prize 1974

This year's Prince Philip Prize, awarded annually for 'an original Australian product or system which displays significant qualities of inventiveness, economy, efficiency, and appearance, contributing substantially to the industrial advancement of Australia', has this year been won by PA Yeomans Pty Ltd of Hillsdale, New South Wales, for their vibrating plough.

The results of the competition were announced in Brisbane on 13 November 1974 when the presentation was made by Air Marshal Sir Colin Hannah, KCMG, KBE, CB, Governor of Queensland.

Mr PA Yeomans, founder of the firm, and Mr JW Ryan, general manager, designed the Bunyip Slipper Imp with Shakaerator as part of Mr Yeomans' soil improvement campaign.

Conservationist

Mr Yeomans is a conservationist of long standing, working for soil improvement by natural means long before the environment lobby became fashionable. His book *The City Forest*, explaining his ideas, is reviewed on page 29.

The Slipper Imp is a new machine of great strength that successfully harnesses the force of powered vibration to work the earth for grain crops, row crops, mulch farming, soil development, and pasture improvement.

Mr Yeomans here describes the development of the plough

We conducted experiments in the development of a 'vibrating plough' in 1957. They were eventually abandoned owing to the high cost in time and of the many difficulties of the project against the pressures of other work. With the decision, ten or more years later, to write an interpretation of Keyline Design for towns and cities, the urge to solve the problem of a 'vibrating plough' renewed itself.

We now wanted machines that would assist firstly in the more rapid development of very deep-soiled grass and croplands and secondly in the creation of tree plantations on the model of the natural rain-forests.

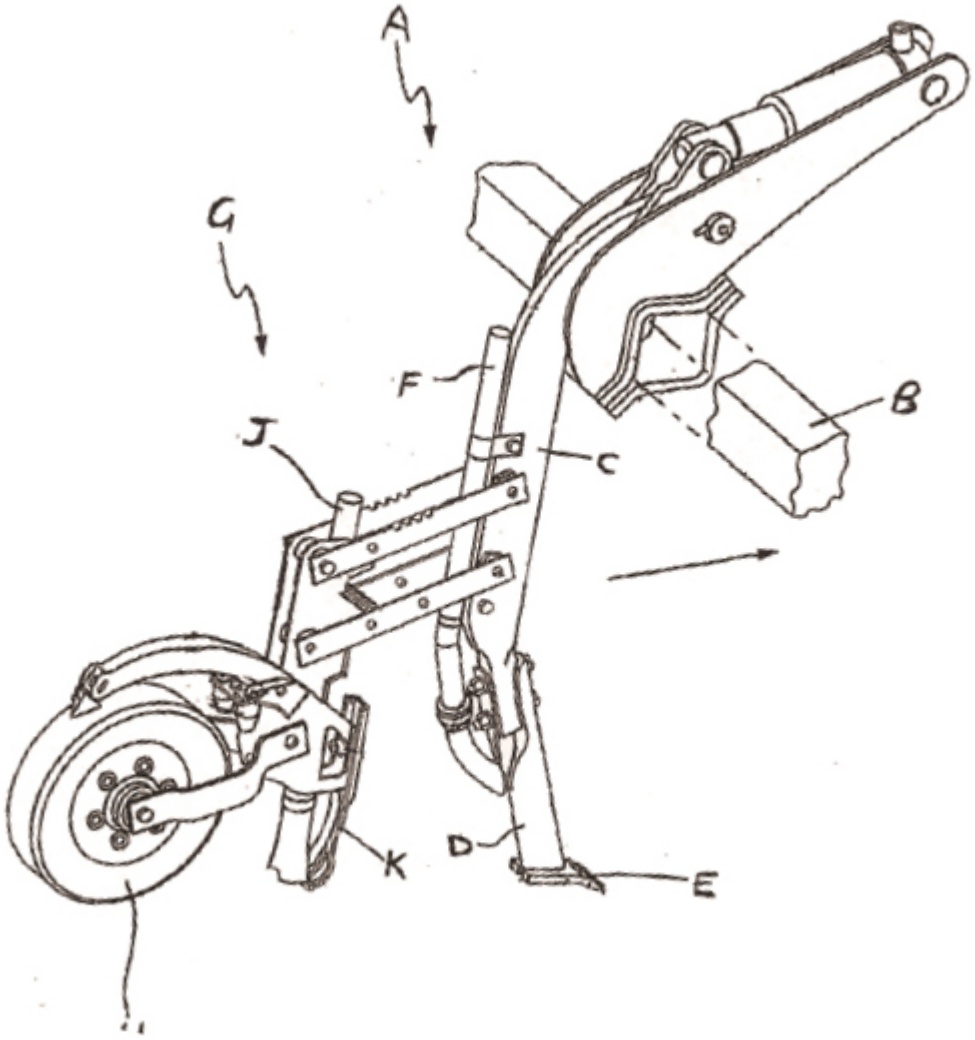
Australia's pasture and crop soils scarcely average 5 centimetres deep. Therefore the hardest and toughest hard-pan and subsoil had to be fractured and aerated progressively down to 42 cm deep for the first objective. Heretofore, many of these tough earths could be opened up only by heavyweight and big horsepower hydraulic power-rippers of parallelogram type forced into the ground against the weight of crawler tractors, which also provided the necessary high horsepower. Although this seems hardly a satisfactory procedure for farmers and graziers, very heavy cultivators and the largest crawler tractors have been used of necessity in the production of some high value row crops.

The economical conversion of such difficult material into deep fertile soil, using relatively lightweight machines and low horsepower farm tractors with the Bunyip Slipper Imp with Shakaerator, is now widely practical.

Even so, it may need in addition a degree of ingenuity on the part of the operator in the worst of these conditions. But one way or another, the Slipper Imp, with the Wombats, is always a digger.

Fracturing and aerating the earth to 162 and 178 cm deep for the final objective, the development of deep-soiled 'rain' forests, could theoretically also be done with present orthodox equipment. But a large single-shank ripper would have to be dragged by two of the largest crawler tractors working in tandem, as for laying cables.

John wins the Prince Philip Prize in 1974 for engineering excellence in developing a soil renovating machine called the Shakeaerator. – **Design Australia Magazine, 1974 No.28**



Sketch of the patented DBS assembly taken from the original Australian Patent Application (No. 2007202351). — **Circa June 2009 Supplied by Engineers Australia**

John Ryan trials the seed placement of the DBS 1993. — **Circa 1993 Supplied by Kym Orrock**


Farm WEEKLY
INCORPORATING ELDERS WEEKLY
THURSDAY, JUNE 22, 1995
Major advance in precision seeding
By KEN WILSON
TOP LEFT: The Deep Blade System (DBS) Ausseeder module shown in order, the leading fertiliser tube, opening/closing tool, seeding and press wheel.

Ausplow’s new DBS technology commands the front page of

popular agriculture magazine. – **Circa 22 June 1995**
Supplied by Farm Weekly

From 1993, research and development gave rise to the concept of a more precise method of accurately sowing seed, resulting in the min-till Auseeder seeding bar and DBS (Deep Blade System) seeding modules. These seeding modules comprised of a patented opening and closing slot and covering wheel system with various size blades that achieve sub-soil cultivation, a form of deep tillage, while leaving the top-soil largely undisturbed.

Achievements with the DBS have enabled farmers to establish crops with minimum moisture while successfully controlling weeds through inter-row chemical application.

DBS owners have seen dramatic improvements on their properties in terms of reductions or even elimination of water run-off, greatly reducing soil erosion. Another major benefit has been the ability to produce crops that are export grade quality.

One of the John Ryan hallmarks is his tireless work with farmers to challenge contemporary thinking and develop new and innovative ways of improving farming systems.

With this initiative, he has provided farmers with free access to his extensive knowledge in agronomy. He never turns inquiring farmers away and is always ready to visit farms or assist if help is needed – particularly when related to improving the performance of the whole farm system.

As John Ryan says: “It is not just the DBS, it is the whole package and attention to the soil.” As one Australian agricultural dealer pointed out: “It is built to last, the quality of the build is the best I have seen, and the three-slot system consistently provides owners with faster and stronger germinations.”

Two happy chappies at one of the many DBS seminars held in the early stages of the company's growth. Pictured here John Ryan (left) and Ratten and Slater, Esperance machinery dealer Doug Slater who brought several farmers from Esperance to attend the discussion day. – **Circa December 2000**
Supplied by Farm Weekly

Hence, it is little wonder that the DBS has become one of the most adopted seeding systems in the history of Australian agriculture. To maintain the DBS success in the market, we have patents, registered designs, and registered trademarks to assist in keeping people off "our patch", but occasionally a competitor has not taken the hint. To Ausplow's surprise it has become necessary to litigate to successfully enforce the company's intellectual property rights.

In 2001, Ausplow Farming Systems recognised the need for more efficient delivery of liquids. The Multistream air cart delivery system was born, and incorporated dosing liquids for accurate metering. The Multistream opened a new world of 'in-

furrow’ liquid treatments, and this slowly gained acceptance by farmers who were more used to dealing with granular product applications.

John Ryan (left) shows Narembeen machinery dealer Mark Hattingh the Best Agricultural Machinery Award won at the 2003 Dowerin Field days for the most outstanding exhibit – DBS Multistream. – **Circa August 2003 Supplied by Farm Weekly**

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Today, the aptly named Multistream can deliver a range of Liquid and Granular products. As adoption of ‘in-furrow’ management has grown, it has been adapted to embrace liquid

herbicide, fungicide, trace elements and nitrogen treatments.

Finally, the Agronomic benefits in dryland farming from using Ausplow Farming Systems is the improvement of soil structure and health. This often can take many years to build, but many DBS owners have reported improvements in the soil after just one year.

It has always been the focus to create a system that would improve soil fertility without compromising crop yields. In fact, by improving the soil environment for crop growth, the Ausplow Farming System can increase financial returns.

Cultivation below the seed is a critical feature for improving soil health because soil hardpans are broken providing multiple pathways for water and oxygen to penetrate soils at depth. At the same time, the DBS has the ability to “chase” moisture in dry starts to the season by creating greater access to deeper sub-soil moisture, thus enhancing the wet-up of seed beds from capillary action.

This feature has allowed farmers to counter adverse effects of dry sowing, particularly in years with sporadic rainfall events, where wet-dry scenarios in the topsoil can cause patchy crop germinations.

The benefits of the Ausplow seeding system for creating a favourable environment for seed germination and seedling development are expanded in the ‘Agronomy’ pages.

The revolutionary DBS blade. – **Circa 1996 Supplied by Ausplow**

The innovative Ausplow Engine Mount for the Multistream. –

Circa 2007 Supplied by Ausplow