



*Winner*

**Land Newspaper - Inventor  
of the Year 1990**



## ***SAM Permanent Raised Bed System (PRBM)***

Reduce Labour ~ Reduce Chemical Usage ~ Increase Yield  
~ Improve Soil ~ Solve Water Logging

Since 1989, Sustainable Agricultural Machinery Developments Pty Ltd has been working on a complete Agricultural System for Horticulture and Broadacre Raised Bed Farming. This System is called the Permanent Raised Bed Management System or PRBM.

The concept is to help farmers who use raised beds to become more sustainable by not working their soils to a destroyed state, and to be able to re-use their raised bed time after time after time.

Through this method of farming, soil structure improves dramatically, the residues from the previous crop remaining on the beds to rot down to make compost, becoming organic matter. Organic matter makes the soil more friable, encourages earth worms, holds valuable soil moisture and makes the soil less fragile to water and wind erosion.

The PRBM System is the key to achieving sustainable and permanent Raised Bed farming by incorporating the fundamental principles of "Controlled Traffic Farming" into the farming cycle.

This leads to:

- Optimum soil structure
- Minimal bed compaction
- Optimal control of bed moisture
- Optimised water dispersal
- Optimal run off and water harvesting control
- Minimised erosion, and thereby
- Greater sustainability.

The four-phase PRBM system is simple to establish and operate because the key machinery components accurately set up and then



*Bed Former*



*Bed Renovator*



*Bed Locker*



*Power Weeder*

*We purchased our first single bedformer and bed locker in 1995 when we first started growing carrots on raised beds. It increased our production greatly. It makes very uniformed, compacted beds that stand up to our heavy applications of irrigation. Due to increased market demands we have now purchased a triple bedformer in 1999. Grant Brown - Awarded "Best Carrot Grower in the World 1999" by the Japanese market.*

## Phase 1

*Prepare the field by ripping and / or ploughing and lay out the beds to optimise water run off and harvesting potential using the SAM Lister bar.*

## Phase 2

*Create the beds using the SAM Bedformer.*

The bed forming and compaction mechanisms produce optimum seedbed structure and density, controlled bed top and side compaction creating an ideal environment for maximum germination, faster plant growth and a more uniform crop with minimised bed erosion. This however, is just the start of the benefit of this system.

The really big grains come from the exact uniformity of the beds that then allow the mechanisation of all subsequent processes including seeding, transplanting, weeding, spraying, watering, fertilising and harvesting.

Once you have created the PRBM raised beds, you are ready to take full advantage of the PRBM system. The exact structure and profile uniformity of the beds now comes into play as all bed machinery can now utilise the PRBM tracking system to accurately control all operations.

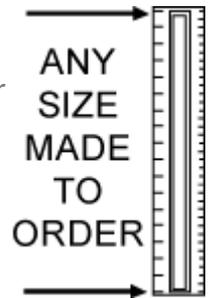
## Phase 3

*Mechanise Planting, Weeding, Harvesting and all other crop management processes using the SAM Bedlocker.*

The Bedlocker is the third phase of the PRBM system. It floats behind the tractor locking the front toolbar skis onto the bed sides ensuring exact positioning of any implement or tool fitted to the Bedlocker guaranteeing extreme accuracy of operation. The trailing skis ensure longitudinal alignment of all operations and also re-compact the bed sides.

The Bedlocker is the carrying mechanism for all seeders, sprayers, transplanters, weeders and harvesters. The extreme accuracy of the system means that crops such as lettuce that conventionally have been propagated from seed in a greenhouse and then transplanted into the beds are now direct seeded into the beds and achieves a germination rate better than traditional methods.

The labour saving and efficiency benefits equally apply to all other PRBM functions.



# Raised Bed Farming

Weed control is commonly a labour and/or chemical intensive and expensive activity. The PRBM “power weeding” system eliminates the majority of these costs and concerns.

This means that crops that have either been precision sown or precision transplanted can now be mechanically weeded within 30mm of the plants with the added benefit that the weeder also lightly cultivates the soil. This method mimics hand chipping and gives excellent trash clearance. This component of the PRBM system is suitable for 95% of soil types.

The fully floating inner deck has excellent under frame clearance and contour following ability to ensure exact positioning of the self sharpening/self cleaning knives so that no crop damage occurs.

The PRBM system further simplifies the automating of all other processes because you know exactly where every plant will be in the bed. This means that previously labour intensive processes such as harvesting can be mechanised and multi-tasked - further reducing costs.

**Phase 4** - Renovate the beds ready for the next planting by using the SAM bed renovator.

After harvest, the SAM bed renovator restores your perfectly formed permanent beds ready for the next crop cycle. In one pass it reproduces the perfect seedbed; burying rocks, trash and organic matter as well as breaking up clods.

The machine combines a patented “non-panning” blade design with a reverse tilling action, soil separation grate and bed levelling blade to produce a perfect tilth.

Another major advantage is that additional processes such as incorporating fertiliser, laying drip tape and even seeding can be done in the one pass at considerable cost saving to the farmer.

The PRBM system is unique in it’s scale ability. From small holdings to large commercial enterprises, the system can be scaled to operate on three beds at a time totalling six metres in width, dependant on the horsepower of your tractor, further reducing time and cost factors.



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