



regulatory agencies. OH&S compliance, maintenance of chemical use records and BAS returns are examples of requirements that are already creating additional work, stress and expense. The demands of consumers for farmers to be more accountable for their farm management practices will raise further challenges.

Conservation status

Although the James' property has been extensively developed it retains some important conservation assets. These areas of remnant native vegetation are largely in the form of narrow belts along fence lines and roads, with a few other sizable patches. Woodland areas generally have moderate levels of over-storey and ground cover, and a moderate number of potential nesting hollows. Exotic weed cover is low and natural regeneration of trees is occurring. Areas of grassy box woodland along several drainage lines are significant for their woodland composition, habitat value and the connecting role they play with other native vegetation, especially a large nature reserve in the vicinity. These are key biodiversity assets for the property. The fence line woodland along the main homestead driveway is also of high landscape value because of the connecting role it plays with other remnant areas.

The property supports moderate diversity of birds including 20 woodland dependent species, four of which are of regional or statewide conservation concern. These are the Emu, Grey-crowned Babbler (listed threatened species), Rufous Whistler, and White-browed Woodswallow all of which are declining in the NSW wheat-sheep belt.

Because most of the property is involved in the cropping rotation, native biodiversity across most of the area is low but the James's management aimed at restoring native perennial grasses is a compensating factor. In addition, the property retains some areas of uncultivated native pasture, now cleared of trees but with intact native ground cover.

Summary

The James family's properties have continued to evolve with a conservative approach. Their focus is on reducing risk by using an 8 to 10 year rotation consisting of a short 2-year cropping phase and a long pasture phase to allow regeneration of native grass species. Cropping inputs are kept to a minimum to reduce exposure to variable climatic conditions. Livestock enterprises are managed to meet their specific needs. Drought proofing through on-farm storage of fodder is strongly emphasised. The introduction of new tree lines will enhance the perennality and biodiversity of the properties. A conservative approach to the farm business has resulted in long term success in a variable climate.

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Grain & GrazeTM

Profit through knowledge

Low risk farming in a variable climate

The James Family, Condobolin

Background

The James* family originally settled in the Condobolin area in the early 1900's and purchased additional country in the 1950's. They now farm 5900 ha over three blocks in the Lachlan catchment. Rainfall is non-seasonal with an annual average of 400 mm. Soils are mainly red earths with small areas of grey clays adjacent to drainage lines.

With one full time employee, they run a mixed farm producing wheat, oats, sheep, prime lambs and cattle. The annual cropping operation involves about 1230 ha of wheat and 440 ha of oats for grain and fodder, using a combination of conventional production methods and minimum till that is typical of the Condobolin area. The stock enterprises comprise a self-replacing merino flock of 2000 ewes and a breeding herd of 150 cattle which they plan to increase to 200.

An important factor underlying their current position has been the clearing of an additional 2400 ha in the mid 1990's. This allowed them to grow some good

crops on new land in good seasons, and to become a viable farm unit. It brought their total arable area to 5000 ha.

The James family are conservative in their approach to farming, the result of experience in the 1979–82 drought. In a highly unreliable environment flexibility is important and the mix of enterprises changes depending on seasonal conditions. The management approach they have developed aims to reduce risk and minimise input costs while retaining the capacity to maximise returns in good years.

Economic performance

The table overleaf indicates that while crops and livestock are equally important overall, their individual contribution varies greatly between years. Overhead costs are kept low in relation to income. While returns fluctuate greatly from year to year the property overall has generated approximately \$1.30 of income for each \$1 spent. The size of the operation is an important factor in the overall success of the business.

Highlights

Management aims to minimise inputs and risk in an unreliable environment through:

- use of a short cropping phase,
- regeneration of native perennial pastures,
- attention to the needs of specific livestock classes,
- on-farm fodder storage and
- professional and peer group advice.

Restoration of native vegetation communities is actively encouraged.

Regional partners:



Central West/Lachlan



Key management principles

Key principles of the James's management system include:

- **A short cropping phase (2 years) and a long pasture phase (6–8 years)**

A typical cropping phase commences with a chemical fallow in July, followed in September/October by cultivation using a trashworker, leaving a rough surface to reduce wind erosion. Depending on seasonal conditions the fallow is maintained by either chemicals or cultivation. The first crop is sown using conventional machinery. The second is direct drilled using 12" spacings and undersown with lucerne and medics.

The red soils in the district readily develop a plough pan if farmed too frequently. Restricting the cropping phase to two years is intended to prevent this.

However, the James family has also found that the long pasture phase encourages re-establishment of a range of native perennial grasses which prevent wind erosion and provide reliable stock feed. Summer-growing species include umbrella grass, mulga Mitchell grass, and wiregrass while winter-growers include white-top and corkscrew. A pasture with about a 50:50 mix of lucerne and natives is considered ideal. Natives increase further as the lucerne stand declines but reseeding of lucerne is not carried out if this is likely to damage the perennial grass pastures. Non-selective herbicides such as glyphosate and paraquat are used at minimum rates to control saffron thistle when required.

Item	Units	2000	2001	2002	2003	2004	Overall
Livestock income as % of total income	%	30	87	36	72	73	50
Crop income as % of total income	%	70	13	64	28	27	50
Gross margin/ha*	\$/ha	65	2	105	27	14	43
Variable costs as % total income [†]	%	39	95	24	58	72	47
Overhead costs as % total income [†]	%	7	25	13	22	11	14
Operating costs as % total income [†]	%	15	42	10	20	25	18
Income: cost ratio**		1.6	0.6	2.1	1.0	1.0	1.3

* *Gross margin (GM) = income less variable costs, GM/ha is calculated on a whole-property basis (5900 ha);*

[†] *Variable costs = direct costs of inputs; Overhead costs = electricity, rates, telephone etc.; Operating costs = depreciation, interest, wages etc.*

** *ratio of total income from sales to total cost of production (variable + overhead + operating costs)*

• Low inputs

The seeding rate for wheat is low (26 kg/ha in average years) and fertiliser application varies from 45–60 kg/ha of MAP depending on seasonal conditions and expected yield. These rates, and the long pasture phase of 6–8 years, keep overall inputs low and reduce exposure to unfavourable seasonal conditions.

• Drought management strategies

Fodder is stored on farm for drought feeding during poor seasonal conditions and stock numbers are reduced early by sale or agistment. Most of the James's cattle were agisted in May 2003. This allowed pastures to rest, and helped maintain ground cover, but travelling has increased the time required for cattle management.

• Precision management of livestock production

Scanning of pregnant ewes has convinced the James family of the need to provide supplementary feeding for maiden ewes under poor seasonal conditions. This group was identified as mainly responsible for reducing the weaning percentage from 92% in 2002–03 to 81% in 2003–04. To improve this performance, maiden ewes were supplemented in 2004–05 with oats that had been pit-stored on the property. Scanning maiden ewes allows non-pregnant individuals to be identified and replaced with older, purchased ewes.

Twin-bearing ewes were identified as having a low weaning percentage. To reduce this problem the Jameses are now trying smaller mobs and frequent handling aimed at keeping the animals





quiet and reducing mismothering.

Approximately 300 prime lambs are produced each year by joining cull ewes to Dorset rams. Maiden ewes that have been scanned and found empty may also be joined to Dorset sires, if not sold, in order to maximise the number of lambs produced.

The cattle enterprise does not receive the same level of attention. Weaning percentages from the 150 breeders were 82% in 2002–03 and 86% in 2003–04. Heifers are retained as replacements and steers are grown out to two years of age if the season permits.

• **Enhancing biodiversity and perennality**

The James family is very aware of the need to improve biodiversity. They have recently ceased cultivating within 50 m of the edge of paddocks allowing the areas to act as seed banks. They have also considered using direct seeding to establish tree lines. The tree lines have offered refuge and resources to native wildlife, as well as shade and shelter for their stock. Birdlife on the property has increased and other pasture and tree species are starting to regenerate in these areas. Herbicide usage is kept to a minimum to ensure that perennial grasses regenerate. The perennials respond quickly to rain and provide good ground cover for erosion control and seed for native animals and birds. The Jameses aim to maintain a mix of native grasses and exotic species in their pasture to maximise growth response as the timing of rainfall is unreliable and different species will respond in different seasons.

• **Farm business management**

Keeping profits up with low inputs requires sound business decisions. The

James family has sought to reduce taxation and hedge against income variability using Farm Management Deposits. They also store produce on-farm to take advantage of future price rises, or to spread income over years for tax purposes. Off-farm investments including a self-funded superannuation scheme have allowed them to plan for their future. Their farming system has evolved through diversification, keeping costs low and being conservative.

• **Consultation**

The Jameses are members of an informal group of district farmers that meets once a year to discuss productivity and results. They find this interaction invaluable as a monitoring tool which helps plan the next year's operations. They have also benefited from the recommendations of professional advisors, such as agronomists, who have helped improve their management skills. They are currently considering a move into Dorpers following advice from industry consultants. The James family is committed to community and industry groups to ensure that their industry develops in a sustainable manner and that they are in a position to apply best management practices on their property.

Synergies and challenges

The various enterprises of the James family's business are complementary to each other. Their stock enterprise assists their cropping enterprises by

- knockdown of stubble, reducing trash load through machinery
- weed control – directly as an alternative to herbicide usage, and indirectly through reduced seed set.

Managing stubble is a balance

between maximising future crop returns and providing fodder and a worm-free environment for stock over summer. Stock are removed in time to maintain adequate ground cover, and during wet periods to minimise compaction. Under-sowing crops with pasture increases stock fodder and fertilizer applied in the cropping phase increases pasture quantity and quality. The sown oats are stored and used as fodder in periods of drought.

The challenges in running this mixed farm are related to the need to get jobs done efficiently and avoid overlap of major tasks. Timeliness of operations is most important. With a June shearing, it is important to have sowing completed before shearing commences. Likewise, it is necessary to avoid calving during harvest so the joining period for the breeding herd is kept short.

The Jameses find there isn't enough time each year for a family holiday and feel guilty when they do go away. As a result they realise there is a need to balance work, family, friends and their health on a daily basis.

Future aspirations

In the future, the James family aims to reduce the size of their operation or lease part of the property. This will allow more time for themselves and a better balance between work, health, family and friends. They also aim to undertake some business management courses and increase the level of off-farm investments and superannuation.

Further challenges

The James family see that the evolution of their farming system will be largely governed by the requirements of government and

