

## Production

The Eppalock Project had brought to farmers in the catchment erosion control, increased production, permanence of land use, greater prosperity and security.

The increase in production has become one of the most significant features. This has been the result of chisel seeding which was adopted as a means of improving infiltration and reducing run-off and consequently the amount of silt that would have entered the reservoir Lake Eppalock.

Pasture improvement by chisel had trebled per acre production on many properties and the increased farm income has benefited not only the farmer but also the Shires and the State.

Year	Acreages			Costs		
	By Contractor*	By Landholders**	Totals	Contractor	Landholder	Totals
1961	3, 242	1, 938	5, 180	\$ 8, 008	\$ 4, 394	\$ 12, 402
1962	3, 237	1, 442	4, 679	9, 067	3, 269	12, 336
1963	3, 926	1, 177	5, 103	11, 170	3, 252	14, 422
1964	4, 103	1, 560	5, 663	11, 759	4, 618	16, 377
1965	3, 590	975	4, 565	10, 704	2, 912	13, 616
1966	2, 836	1, 106	3, 942	8, 391	2, 512	10, 903
1967	2, 208	1, 546	3, 754	7, 678	4, 260	11, 938
1968	2, 289	756	3, 045	8, 577	1, 967	10, 544
1969	3, 145	1, 098	4, 243	10, 992	3, 108	14, 100
1970	2, 930	497	3, 427	10, 566	1, 339	11, 905
<b>Totals</b>	<b>31, 506</b>	<b>12, 095</b>	<b>43, 601</b>	<b>96, 912</b>	<b>31, 631</b>	<b>128, 543</b>

\* Excludes chisel seeding done by the SCA or with SCA equipment (Chisel seeding of excised areas, &C).

\*\* Acreages shown in this column are for chisel seeding done by landholders using their own equipment by employed and paid by the Authority on an hourly rate.



A three-fold increase in carrying capacity is now common in the Eppalock Catchment. Production is no longer confined to wool; more landholders are producing fat lambs.

The improvement of pastures has opened the way to diversification. Whereas sheep grazing for wool production was the only possible use that could be made of the sparse unimproved native pastures, fat lamb raising and the breeding and fattening of cattle have not only become possible but often desirable. The introduction of cattle into the catchment, once considered impossible or at least impractical, has already become a reality and would be more rapid but for the high initial cost of their introduction and the fact that neither fencing nor stock water is usually adequate.

Although the lift in production has long been evident to all concerned, little effort had been made until recently to assess this increase accurately, except for some individual properties. The opportunity to investigate whole subcatchment areas arose when the responsibility for the maintenance of erosion control works was handed over to landholders in one of them. Sufficient time has elapsed since the start of the project for any changes to have become significant, and the area was sufficiently typical and large enough to be representative of the 320 square miles that make up the Eppalock problem area.

Here are some statistics concerning the area investigated:

Total farm area assessed:	16,100 acres
Total area of chisel seeding planned:	9,450 acres
Total area chisel seeding to June, 1969:	5,200 acres
Additional chisel seeding intended by landholders before end of project:	2,860 acres
Subdivisional fencing planned:	1,452 chains
Subdivisional fencing completed to June, 1968:	1,093 chains

The 5,200 acres of chisel seeding, and the associated increase in the use of superphosphate, enabled farmers to increase their stock numbers from 19,200 to 32,200 or from 9.0 to 16.0 lb/acre. The value of this increase, calculated on 40c/lb. Basis – which was the approximate average price per pound for that year, 1969, obtained by landholders in the area – was \$45,600.

Assuming that over the whole of the 320 planned square miles of the Eppalock Catchment production increases have been similar, the annual value of such increase would have been \$580,000.

If further chisel seeding planned by landholders boosts production in the same manner that previous chisel seeding has done the value of that increased production could well rise again by another \$300,000.

There is little doubt that production could be further increased by continued topdressing. This applies particularly to pastures that were only recently improved and where cumulative superphosphate applications have only reached 2-4 cwt/acre. There are many instances of under-stocking and substantial increases in production and profitability would also occur if stocking rates were increased to an indicated safe optimum level.

A grazing trial conducted by the Department of Agriculture on a property in the Mia Mia district over a period of six years had provided landholders with valuable information as to where they can expect this optimum level of safe production to be.

A stocking rate of 3-3 ½ sheep/acre has been indicated and was subsequently confirmed in broad-acre demonstration plots.

When evaluating the result of the trial the substantial benefit of increasing stocking rates to the safe limits became evident. Departmental officers calculated the extra gross margin for an increase from 2 sheep to 2½ sheep/acre as giving an 88 per cent return on the investment for the extra ½ sheep.

The deterioration in the cost price situation for wool may well reduce the magnitude of any increase in production and farm income on properties dependent on wool as their only source of income. However, there is little doubt that, if this production increase had not occurred, many of the marginal farms would have long ceased to provide an adequate income for their owners. Furthermore, wool is no longer the only possible avenue of farm production. Many of those farmers who were fortunate enough to have had good fences and ample stock water have either introduced cattle or increased their number and are deriving a growing part of their income from the presently more profitable beef cattle production.

It is highly unlikely that optimum stocking rates as indicated in the Mia Mia grazing trial will ever be attained over an area of 320 square miles or even the 16,000 acres of the production assessment. There are always pockets of land that are physically incapable of such production levels. Furthermore, bringing a property up to that level of production and maintaining it there requires considerable

managerial skill. It also requires a substantial initial investment of money that is becoming hard to find at an acceptable level of interest and repayment.

However, there are many individual properties in the area that have either already reached this level of production or are approaching it. Neither of the two properties described below have as yet reached that desired production level. However both are on their way and support the case for pasture improvement and increased production.

### **PROPERTY A**

This property of approximately 900 acres was bought by its owner in 1956. Following is an extract of the initial inspection report by an Authority officer written in 1960:

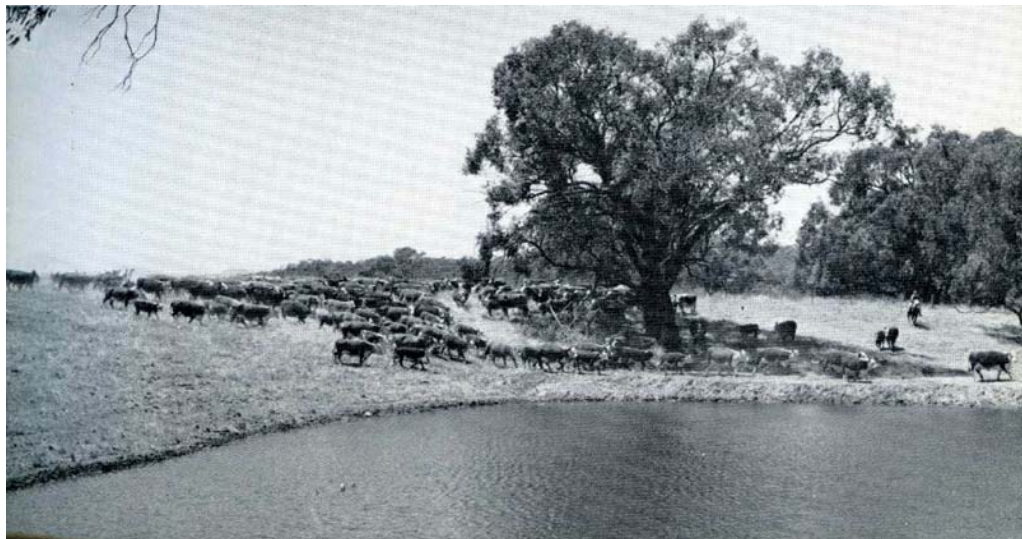
*“Overgrazing has resulted in extreme degradation of the property reducing the stock carrying capacity to ¼ sheep/acre.*

*Early in 1956 the owner contour furrowed approximately 60 acres on the western boundary. Because of the tendency of furrowing, without pasture improvement, to aggravate tunnelling such treatment was abandoned.*

*The Owner employed a contractor to fill some of the smaller gullies and construct a number of diversion banks. Lack of protection of the former and incorrect siting of the latter resulted in further deterioration of the land so treated”.*

Erosion included sheet erosion, rilling, deep gulying, severe tunnelling, stream bank erosion and siltation. It was estimated that a minimum of \$8.50 per acre would have to be spent to stabilize the worst of the existing erosion. Efforts at carrying out piecemeal improvements had repeatedly met with failure.

By 1960 selective topdressing and some 200 acres of chisel ploughing without seeding nevertheless had enabled the owner to increase his stocking rate to 580 sheep or just over ½ sheep/acre. Wool production in that year was seventeen bales.



When the project started very few landholders ran cattle. Now herds of fine Hereford cattle like these are not only possible but profitable.

Between 1961 and 1966 a systematic programme of pasture improvement by chisel seeding was implemented and a total of 800 acres was eventually sown. Annual topdressing of improved pastures became a regular feature.

Despite the fact that a substantial area, varying from 88 to 185 acre annually, was out of production during that period, the number of sheep carried increased steadily. By 1965 stock numbers has doubled again and so had the wool clip. In 1970 this property that once carried 580 sheep and produced seventeen bales of wool from 900 acres carried 1,780 sheep and produced 81 bales of wool.



Two concrete structures solve a difficult gully erosion problem.



A once-active gully is now stable and practically level with surrounding ground.

The target is 100 bales and seasonal conditions permitting, this now seems attainable. It will necessitate putting on another 5-600 sheep and increasing the stocking rate to approximately 2-7 sheep/acre.

As indicated in the extract of the original planning report this property is in what used to be the most deteriorated and eroded part of the whole of the Eppalock Catchment.

Within that area it was one of the worst which is well demonstrated by the aerial photo showing a section of it on page 41.

Today there is little or no active erosion and the level of fertility is constantly increasing. The value of the land was recently estimated at a figure of more than ten times that of the purchase price. The following table shows how pasture improvement has affected production over the ten-year period of the project.

Year	Area Chisel-seeded	Superphosphate in Tons.	Stock Carried		Wool Production		
			Sheep	Lambs	Bales	Sheep	Lambs
1960			587	166	17	4,910	170
1961	175	17.5*	570	145	16	4,650	180
1962	185	36.0**	615	170	21	6,020	200
1963	88	45.0**	640	185	23	6,650	250
1964	165	50.5**	745	200	22	6,39	230
1965	158	62.0**	1,046	211	31	6,393	392
1966	26	33.0**	873	296	30	8,893	622
1967		40.0***	1,140	440	39	10,248	741
1968		40.0***	1,567	206	51	13,788	685
1969		40.0***	1,784		73	21,900	
1970			1,760		81	21,440	

\* Lime: super and molybdenum only.

\*\* Includes lime: super and molybdenum plus straight super

\*\*\* Superphosphate only. Maintenance top dressing.

### PROPERTY B

Erosion on this property of 765 acres was not quite as severe as on property "A" and the per acre cost of erosion control works was estimated at \$6. As on property "A" a systematic programme of pasture improvement was commenced (in 1962). It was completed in 1966 after a total of 576 acres had been treated. Although in an area of somewhat better rainfall and soil, the initial stocking rate and carrying capacity were about the same as on property "A". An all-wether flock was run as against a mixed flock on property "A". No topdressing had been done prior to 1960. The following table shows how pasture improvement was executed and its reflection on production.

Year	Area Chisel-seeded	Fertilizer in Tons	Stock Carried (wethers only)	Wool Production
1962	137	7*	570	Lbs 7,388
1963	203	21.5**	592	8,179
1964	99	30.0**	718	8,543
1965	88	26.5**	852	12,671
1966	49	58.5**	1,080	14,182
1967		39.0***	1,206	14,603
1968		39.0***	1,243	15,302
1969		39.0***	1,375	19,545
1970		39.0***	1,604	23,937

\* Lime: super and molybdenum only.

\*\* Includes lime: super and molybdenum plus straight super

\*\*\* Superphosphate only. Maintenance top dressing.

The stock number shown as 1,604 sheep at shearing time in 1970 has since been increase to 1,932. It is still quite inadequate to cope with the tremendous amount of feed in the paddocks which, from the point of view of quantity, would be better suited for cattle than sheep.



A diversion bank disposes of water safely

Even at the present carrying rate of 2.5 sheep/acre this property is definitely understocked and could, without any further improvement, comfortably carry 3 sheep/acre or better.

One improved paddock was left ungrazed for about fifteen months simply because there were insufficient stock to graze it.

Over-cautiousness and the high price of stock at the time when it should have been bought, have prevented the landholder from reaping the full benefits of this improvement. The inadequacy of fences and of the existing stock water supply and the lack of experience has so far prevented the introduction of cattle.

These are two examples of how pasture improvement by chisel seeding have improved production. There are many others.

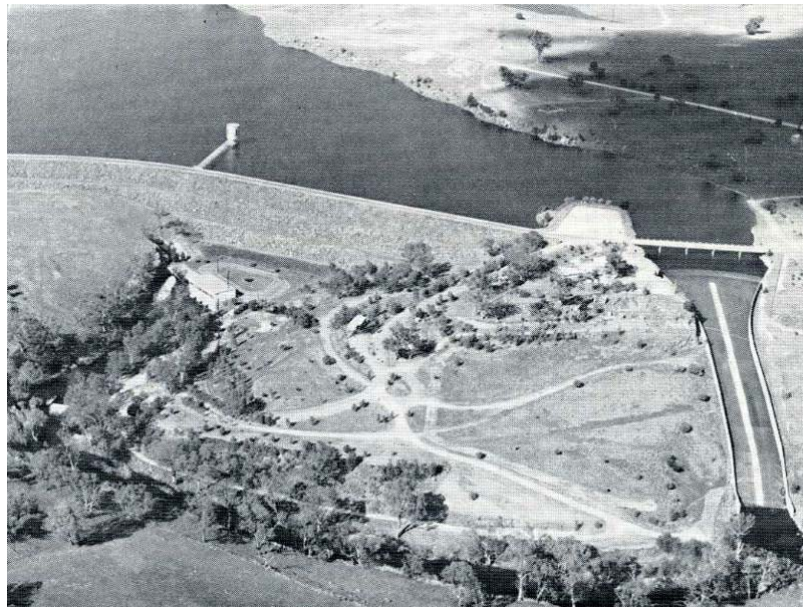
Apart from the evident and almost spectacular effect pasture improvement by chisel seeding has had on production there are many signs that not only the cover on the ground but also the attitude of people who own it have changed. These are not quire as evident and spectacular: swinging gates instead of old bedsteads or broken down wooden contraptions, better maintained fences and numerous other smaller and bigger improvements.

Man has regained control over the land and its ultimate fate is no longer complete and apparently inevitable destruction. Soil conservation, when considered principally as the application of correct land

use, is a paying proposition instead of being a costly nuisance or an obligation one feels one had towards future generations.



An aerial photo of property "A" when it was purchased shows severe sheet erosion and gullies.



The dam wall at Lake Eppalock