THE COONABARABRAN AND COOLAH SHIRES DISTRICT

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District Agronomist,
Coonabarabran.

Orana and Far Western Region,
Department of Agriculture, NSW.

UNDERSTANDING THE SOILS, CLIMATE, CROPS AND LIVESTOCK OF THE DISTRICT

BETTER DECISIONS
FROM
GREATER UNDERSTANDING

NOVEMBER, 1981.

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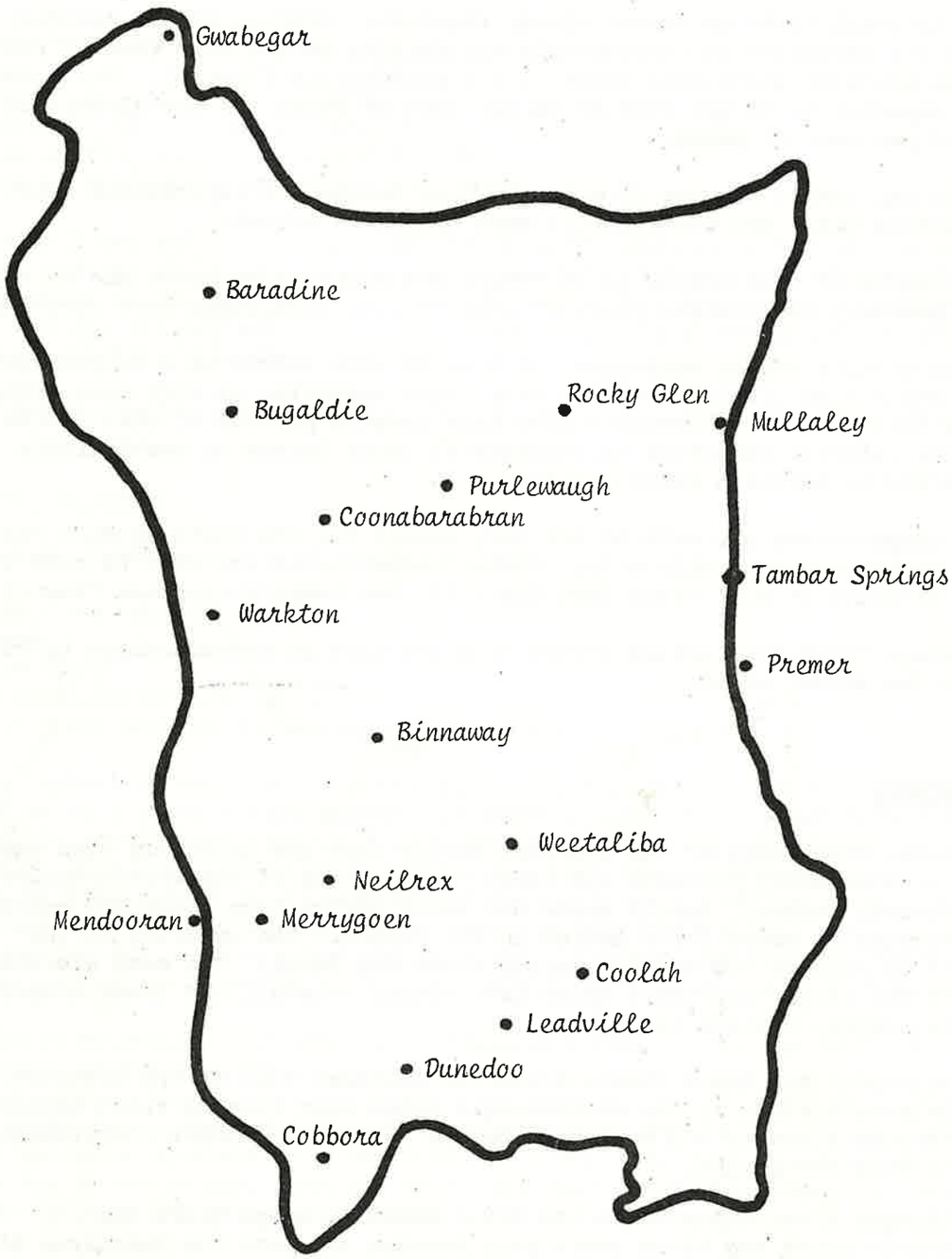
THE COONABARABRAN DISTRICT

Understanding the environment is the first requirement for successful property management.

This bulletin endeavours to provide background information to assist present and prospective landholders in the Coonabarabran and Coolah Shires.

Background information is provided to describe climatic detail, topography, soils, cropping practices, livestock enterprises, and pasture improvement.



INTRODUCTION

This bulletin is designed to provide information on cropping and livestock industries in Coonabarabran and Coolah Shires.

It aims to assist present and future landholders in planning an overall farm programme and should also be a worthwhile guide to prospective buyers choosing a property.

CLIMATE

Average annual rainfall varies from about 560 mm west and northwest of Baradine to about 780 mm in the more elevated parts of the Liverpool and Warrumbungle Ranges. (See Table 1 for average annual rainfall). Average annual rainfall for most of the district is 610 mm.

Summer rainfall tends to exceed winter rainfall. Average annual rainfall figures are deceptive as considerable variability occurs from year to year and from month to month (see Table 11 for probability figures). Dry autumns can be expected in 30 per cent to 50 per cent of years and dry springs in about 30 per cent of years.

Moderate dry spells varying from one to four months are experienced about every second year, and are slightly more common in autumn.

Long droughts of four months to 10 months are experienced about one in eight years, however, consecutive years of long drought conditions have occurred.

The term drought can be confusing. A long drought refers to a lengthy period during which time little effective rain falls resulting in very poor crops or crop failures. Long droughts also mean lengthy periods of very little effective rainfall resulting in substantial stock losses or considerable handfeeding to maintain stock health.

Summer temperatures are warm to hot and, except for the North Western Plains, summer nights are generally mild. Winter temperatures are cool to mild with severe frosting in some areas (see Table III for temperatures and frosts).

The average frost free period varies from 200 days at Coonabarabran to 250 days in the warmer areas.

TOPOGRAPHY

The general topography of the district varies from the uniformly flat western plains to undulating plateaux and hilly rugged areas of the Warrumbungles and Liverpool Ranges. Height above sea level varies from about 200 metres near Gwabegar to about 1,200 metres in the ranges. The majority of the district is between 300 and 600 metres above sea level. The more elevated parts of the ranges and their spurs have higher rainfall and lower evaporation than the slopes, valleys and plains.

The Castlereagh and Namoi rivers drain the northern half of the district. The Castlereagh rises in the Warrumbungle Range near Coonabarabran meandering south through Binnaway and Mendooran before turning to follow a northwesterly course across the plains.

The Talbragar River rises where the Great Dividing Range joins the Warrumbungle Range and flows south past Dunedoo and into the Macquarie River near Dubbo.

1" = 25.4 mm

SOILS

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wide range of soil co

- clay to loam in na
- generally high to
- have a neutral to
- high in calcium
- red grey or black
- excellent for crop
- principally grow w

Areas of basalt soil
Goorianawa, Mendooran
southern parts of the

Sandstone derived soi

- sandy to sandy loa
- acid to mildly aci
- can be high in alu
- low to moderately

The more loamy and le
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for pasture improveme
wood and red stringy
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Many good alluvial an

EVALUATING SOILS

Important considerati

- type (see above)
- depth
- fertility
- acid/alkaline react
- slope and absence

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poorly drained and cau

Soil fertility varies
pasture history. Soil
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SOILS

There are two main soil types throughout the district, basalts and sands. After millions of years the two have merged to various degrees and formed a wide range of soil combinations. Basalt derived soils are:

- clay to loam in nature
- generally high to medium high in natural fertility
- have a neutral to slightly acid reaction
- high in calcium
- red grey or black in colour
- excellent for cropping and improved pastures
- principally grow white box and kurrajong trees.

Areas of basalt soil are throughout the Binnaway, Coolah, Dunedoo, Goorianawa, Mendooran, Premer, Purlewaugh and Mullaley districts and on the southern parts of the Warrumbungle and slopes of the Liverpool Ranges.

Sandstone derived soils are:

- sandy to sandy loam in nature
- acid to mildly acid in reaction
- can be high in aluminium saturation
- low to moderately low in natural fertility.

The more loamy and less acid sandstone derived soils are often indicated by apple, box and white pine trees and occasionally box timber and are suitable for pasture improvement and cropping. Ironbark, black pine, white gum, blood-wood and red stringy bark trees also grow in this soil group and, generally, represent sandier and more acid soils.

Many good alluvial and sedimentary soils exist throughout the district.

EVALUATING SOILS

Important considerations of soils include:

- type (see above)
- depth
- fertility
- acid/alkaline reaction
- slope and absence or otherwise of stone

It is important, especially on the lighter soils, to determine soil pH before undertaking a cropping and pasture programme. Acid soils which have a pH below 5.4 should have the level of aluminium saturation determined. As an example, if a soil tested pH 5.1 and had a high aluminium saturation, it would be more suited to a programme including lupins, triticale, or aluminium tolerant oats and serradella rather than the more traditional wheat or lucerne. In other words, various crops and pastures, and more importantly varieties within each group, have different tolerances to soil pH and aluminium levels.

Aluminium saturation and other soil tests are done by the New South Wales Deparment of Agriculture.

Soil depth is an obvious consideration because it stores moisture and nutrients. Wheat extracts moisture to a depth of 1.5 m and sunflowers to 2 m, so deep soils are an advantage. Shallow soils are more limited in capacity, can be poorly drained and cause waterlogging.

Soil fertility varies considerably depending on the previous cropping and pasture history. Soil fertility can be built up by using fertilizer and legumes. Conversely, fertility can be depleted through exploitive cropping practices. Even naturally rich basalt soils can be reduced to "deficiency" status through heavy cropping unless attention is paid to fertilizer and/or

rotation with legumes. Soil testing will assist in determining the soil fertility level, and so will a knowledge of previous farm practices.

CROPS

The Coonabarabran and Coolah shires are mixed farming areas. The main crops are wheat, oats, barley, grain sorghum, sunflowers, lupins, triticale, and cowpeas. Other crops grown include linseed, rapeseed, field peas, millets and fodder sorghum.

Areas for the principal crops are given in Table IV.

1. WHEAT

The area sown to wheat generally exceeds all other crops. Average yield per hectare for 10 years for both shires is 1.4 tonnes *1 *2. The better farmers average 2.0 to 2.2 tonnes per hectare or more.

The northern and northwestern sections of the district around Baradine, Goolhi, Mullaley produce premium hard wheats on high fertility soils in quick-finishing conditions. The central and southern parts of the district produce slightly lower protein hard wheats principally of the central hard type.

In common with the general northwestern areas of New South Wales the district's most important disease of wheat is stem rust. Frost damage can be a problem. Major damage occurred in 1969 and to a lesser extent in 1979.

To obtain good yields during a period of years, it is necessary to conserve soil moisture before sowing and maintain soil fertility through pasture rotations and/or appropriate fertilizer usage. The application of phosphate fertilizer with wheat crops is necessary in most of the district. Often there is also a need to apply nitrogen fertilizer on the medium and lighter soil types or the more heavily cropped clay soils. Nitrogen is often required to supplement induced deficiencies as a result of poor fallows.

Black oats, skeleton weed, mustard, poppy, wimmera rye, bindweed and various thistles are among the main weed problems of winter cereal crops.

Details of latest variety and agronomy recommendations for wheat and other crops are available from the Department of Agriculture.

2. BARLEY

Barley production has expanded rapidly due mainly to the increased demand from malsters, development of better varieties and the more efficient organisation of the export trade. Current varieties yield better than wheat, particularly on lower fertility soils which are not excessively acid, i.e. barley is most susceptible to aluminium toxicity on the acid soils.

Growing requirements are similar to wheat and the future expansion of barley will depend on price relativity with other winter crops.

Low protein samples of two-row barley (malting) are accepted by the malting trade with the remainder of the local crop going to the local and export feed trade.

3. SUNFLOWERS

Sunflowers have surpassed grain sorghum as the main summer crop. Average yields have been about 0.5 tonnes per hectare (one-fifth ton per acre) with may good crops exceeding 1.25 tonnes per hectare. Good production methods should result in long term average yields of about .8 to 1 tonne per hectare.

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*1 = 21 bushels per acre
*2 = 30 to 33 bushels per acre

Sunflowers do well on
grain sorghum on mediu
important. New techno
planters and press whe
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Long fallowed, well pr
or inter-row cultivati
higher latitude areas
temperatures. However
district provided soil

4. OATS

Oats, an integral part
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during the winter, and

Main requirements incl
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attention to correct f

5. GRAIN SORGHUM

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Its growth is mainly r
natural or because of

Average yield in recen
individual farmers have

Summer rains tend to be
production is regarded
However, in recent year
a profitable and regula

Apart from good soils,
sowing rates, correct v

6. LUPINS

Lupins are ideally suit
a grain legume crop, lu
an acceptable cash inco

Special requirements fo
excellent weed control,
inoculation, use of sup
hectare.

The grain is high in pr
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7. TRITICALE

Triticale is more suited
than most cereals with t
It fits into a rotation
similar growing requirem

Sunflowers do well on high fertility soils and comparatively better than grain sorghum on medium and poorer fertility soils. Good soil depth is important. New technology such as improved varieties, use of precision planters and press wheels and conservation of moisture are among the main reasons for improved yields.

Long fallowed, well prepared seed beds and adequate weed control using chemicals or inter-row cultivation is required. Sunflowers are more suited to the higher latitude areas of the district which have slightly cooler day temperatures. However, sunflowers are grown successfully anywhere in the district provided soils are suitable.

4. OATS

Oats, an integral part of the livestock industry, are grown to supplement winter feed. Most oat crops are grown as a dual purpose crop, being grazed during the winter, and later harvested for grain.

Main requirements include a well prepared seedbed to allow early sowing during the late February/March period, the use of the latest suitable varieties and attention to correct fertilizer rates.

5. GRAIN SORGHUM

Grain sorghum production varies greatly according to prevailing market conditions. Its growth is mainly restricted to deep soils with high fertility (either natural or because of pasture improvement).

Average yield in recent years has been about 1.7 tonnes per hectare, however individual farmers have averaged twice that amount.

Summer rains tend to be more erratic than winter rains, therefore grain sorghum production is regarded as less reliable on a long term basis than wheat. However, in recent years, with improved technology, grain sorghum has found a profitable and regular spot in the farming programme of many properties.

Apart from good soils, grain sorghum requires ample conserved moisture, low sowing rates, correct variety, and good weed control prior to sowing.

6. LUPINS

Lupins are ideally suited to the lower fertility soils of the district. Being a grain legume crop, lupins contribute to soil fertility (nitrogen) and provide an acceptable cash income.

Special requirements for lupins include choosing the correct variety, having excellent weed control, sowing early (late March/early May/April), seed inoculation, use of superphosphate and sowing seed at 60 or more kgs per hectare.

The grain is high in protein and is in demand from intensive livestock industries such as the poultry and pig industries, and as well has excellent opportunities on the export market.

7. TRITICALE

Triticale is more suited to acid soils with aluminium soil toxicity problems than most cereals with the exception of one or two very tolerant oat varieties. It fits into a rotation following lupins or a legume based pasture and has similar growing requirements to other winter cereals.

8. OTHER OILSEED CROPS

Linseed and rapeseed are grown successfully throughout the district. A high standard of management is necessary because the crops are more prone to weed competition, insect attack, harvesting problems and moisture stress. Several growers with a high standard of crop management have found these crops more profitable than other winter crops, depending on price relativity.

Yields above 1.25 tonnes per hectare (½ tonne per acre) have often been experienced, however, average yields are more likely to be about 0.7 tonnes per hectare.

9. MILLETS

The only grain millet sown until recent years was Hungarian Millet which is also known as setaria or panicum. White French millet is now also grown. Unstable market prices and low yields limit the area grown.

The grain millets have an important advantage in that they mature quickly and can be harvested from 90 to 105 days after planting.

Forage millets are also widely grown to produce summer feed.

10. COWPEAS AND MUNG BEANS

Cowpeas and mung beans are summer growing grain legume crops and have the dual role of providing a grain or grazing income as well as acting as soil fertility builders.

Cowpeas are more suited to very sandy soils but, like mung beans, can also grow well on loam soils.

Markets for both cowpeas and mung beans are variable, ranging from very high to extremely low.

Excellent weed control, including the use of chemicals, is essential for satisfactory yields.

Cowpeas and mung beans are very temperature sensitive and generally should not be sown unless soil temperatures are above 20°C at 9 a.m.

11. FORAGE SORGHUMS AND SUDAN GRASSES

A wide range of hybrid and open pollinated sorghum and sudan grasses are grown to provide summer feed and in some cases carry-over winter feed. Good soil fertility is necessary. Varieties are constantly changing so it is necessary to check on recommendations each season.

12. CROPS IN GENERAL

Profitable crop production depends on many things including using the correct variety, sowing on time, having good soil fertility, weed control and the like. Neglect of one important crop production criteria is more often the result of poor crops than bad luck.

LIVESTOCK

Livestock numbers for

1. SHEEP

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production is a common
improved pastures.

Winter fodder cropping
Added attention to fod
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Successful sheep produc
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2. CATTLE

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3. PIGS

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PASTURES

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1. LUCERNE

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Lucerne is a drought har
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LIVESTOCK

Livestock numbers for the district are given in Table IV.

1. SHEEP

Merinos are the dominant breed, both for wool and breeding first cross ewes for prime lamb production. Breeding first cross ewes for prime lamb production is a common enterprise on properties with a high degree of improved pastures.

Winter fodder cropping is an important adjunct to the prime lamb industry. Added attention to fodder conservation and supplementary feeding is increasing the stability of the industry.

Successful sheep production is dependent on a high level of nutrition and a high lambing survival rate. Worm control, disease preventions, and breeding for the correct type of sheep are important considerations.

2. CATTLE

Though a safe cattle area, the district often experiences a winter feed shortage. Herefords dominate the breeds with shorthorns the next most popular. The amount of cross breeding has increased, with European and bos indicus breed crosses. It is a good cattle breeding area. Calving is mainly in late winter and spring and stock are generally turned off as yearlings. As with sheep, successful cattle production depends on good nutrition and a high breeding rate.

3. PIGS

Recent developments in co-operative pig marketing have increased the popularity of pigs, however, numbers fluctuate according to grain prices relative to market prices.

Pig production is rapidly becoming a specialised business with efficiency the main requirement for survival. There is no profitability in running pigs in a second rate manner.

PASTURES

Pasture improvement has developed rapidly during recent years and the expanding livestock industry is increasingly dependent on these better pastures. Tremendous scope still exists for increased stocking rates by improving pastures with the use of better species, more fertilizer and better management.

Much of the cropping area throughout the district requires restorations by the use of improved legume pastures from time to time.

1. LUCERNE

Lucerne is the main improved pasture species and is suitable to most soil types. Coonabarabran and Coolah shires rate in the top four shires throughout New South Wales for total area sown to lucerne.

Lucerne is a drought hardy, highly productive perennial plant capable of producing high quality feed throughout the year, except for the extreme cold period during June and July. Apart from high productivity, lucerne is a great restorer of depleted soil fertility.

Inoculation and lime pelleting of seed at sowing is generally necessary with all legumes in the district, particularly on the lighter soils. Correct attention to fertilizer and rotational grazing management are other important requirements for good lucerne stands.

2. SUBTERRANEAN CLOVERS

The erratic nature of autumn and spring rains greatly affect the productivity of winter growing annuals such as the sub-clovers. In at least 30 per cent of years productivity of winter annuals is low because of poor seasonal conditions and for this reason the perennial lucerne which can respond to rain at virtually any time of the year is more popular.

However, the sub-clovers are a very useful component of the improved pasture sward on the medium to lighter soils. The most suitable varieties vary according to the introduction of new species, but latest releases have certainly changed this district to a reliable sub-clover area. Features of modern varieties include high burr set, high percentage hard seed, low or zero oestrogen and excellent winter productivity.

3. SERRADELLA

A winter annual legume particularly suitable to the acid, high aluminium sandy soils. New, more vigorous varieties that flower earlier will substantially increase the value of serradella to our grazing and cropping industries.

With the appearance of the Spotted Alfalfa Aphid and the Blue Green Lucerne Aphid in New South Wales it is essential to sow resistant varieties. Until recently all seed of resistant varieties came from the USA, however, with the development of Australian varieties and a reorganised seed industry local production has stepped up. Consult the Department of Agriculture for latest varieties and growing recommendations.

4. BARREL MEDICS

The medics are winter growing annuals more suited to the alkaline basalt soils. Currently, Jemalong barrel medic is the most suitable variety available for general sowing, however, Jemalong like all other medics is susceptible to the Blue Green Aphid attack.

5. WOOLLY POD VETCH

A winter annual legume species suitable to all soil types throughout the district, especially to large paddocks where stocking pressure is not constant and heavy.

6. PERENNIAL GRASSES

Sirocco phalaris and Sirolan phalaris are currently (1981) the superior perennial grass species for the district and sowings are increasing every year. Sirolan and Sirocco phalaris stands are particularly valuable on highly improved properties where there is a real need to prevent bloat with productive grass based pastures.

Sirocco and Sirolan are extremely drought resistant when well established, and high producing autumn/winter/spring plants.

7. OTHER PASTURES

Other introduced pastu
circumstances include:

(a) Haifa White Clove
(b) Wimmera Rye, an a
(c) Palestine Strawbe
(d) Trikkala and sub-
(e) Buffel Grass, a s
(f) Bambatsi Panic an
fertility soils.
(g) Rhodes Grass and

8. NATURAL PASTURES

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There are many others.

FERTILIZERS

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ADDITIONAL INFORMATI

1. PURCHASING PROPERTIE

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Although the Department
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Some possible problems w
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(a) Property units may
as to likely returns

7. OTHER PASTURES

Other introduced pasture species with valuable roles in specific circumstances include:

(a) Haifa White Clover, for hill grazing country in lighter rainfall areas.
(b) Wimmera Rye, an annual winter grass.
(c) Palestine Strawberry Clover, for damp areas.
(d) Trikkala and sub-clover, for damp patches.
(e) Buffel Grass, a summer growing perennial grass.
(f) Bambatsi Panic and Green Panic, summer growing perennials for high fertility soils.
(g) Rhodes Grass and Buffel Grass, special purpose summer perennials.

8. NATURAL PASTURES

Several important natural species respond well to pasture improvement. These include Burr Medic, Button Medic, Wallaby Grasses and Barley Grass. There are many others.

FERTILIZERS

It is not practical to advise general fertilizer recommendations for crops and pastures in the Coonabarabran and Coolah shires. Soil type and fertility are extremely variable, even from paddock to paddock, and it is important to assess each paddock on its merits.

In general the lighter and medium soils are low in phosphate and possibly nitrogen if not previously pasture improved and/or have been over-cropped. The basalt soils are variable in phosphate level and range from very low to very high. Best guides to determine phosphate levels include soil testing, plant deficiency symptoms, past crop or pasture performances, and trial strips.

Most basalt soils are low in sulphur, so the addition of this element is necessary for pasture improvement. However, sulphur application is not required for grain crops as sufficient sulphur is released through the process of aeration caused by normal cultivation. Over-cropped basalt soils can become low in nitrogen and poorly prepared fallows can also generally exhibit low available nitrogen levels. Soil tests are an important aid in determining soil fertility levels.

ADDITIONAL INFORMATION

1. PURCHASING PROPERTIES

There are many pitfalls when purchasing properties throughout this district because of the tremendous variability in soil type, stage of development, and past level of management. The best advice is, "don't rush in". Take your time and check out the property thoroughly. A few days work before purchase can often save a lifetime's disaster.

Although the Department of Agriculture staff cannot advise directly on a particular purchase, they can and do assist by giving general background information. Many local landholders are willing to give constructive advice if approached in a reasonable manner.

Some possible problems which commonly arise through purchase of properties and where background information can be obtained include:

(a) Property units may be too small. It is important to gain some assessment as to likely returns and costs.

(b) Particularly with smaller enterprises, low equity can present insurmountable problems. In years of low income (poor seasons and/or prices) high interest rates are difficult, if sometimes impossible, to meet.

(c) Total area is no criteria to productive capacity. Development cost of uncleared country is extremely high, and productivity of cleared country varies greatly depending on soil type.

(d) When purchasing a property it is often necessary to budget for negligible income in the first year. This is particularly the case if country has not been prepared for cropping.

(e) Field days, meetings and newspapers, general Departmental service.

Finally more detailed information concerning matters such as pasture establishment, crop management, latest variety recommendations, livestock or almost any related subject of agriculture are available through the Department of Agriculture at the local office. Agriculture is a constantly changing business and as a continuous process the Department is assessing new species, management strategies, and overall farm practice.

This information is available without charge to the landholder as a part of the service provided by the New South Wales Department of Agriculture. Officers of the Department are available to advise on all aspects of agricultural management and are willing to inspect your property and discuss various management strategies.

The Department of Agriculture is associated with many trials and experiments throughout the district, and holds field days and meetings to discuss new developments.

Day to day management advice and information concerning new developments is regularly provided by the Department of Agriculture through the local "Coonabarabran Times" and radio stations at Gunnedah, Dubbo, Mudgee and Orange.

TABLE 1

AVERAGE ANNUAL RAINFALL IN MM*

Month	Baradine	Coonabarabran	Binnaway	Mendooran	Dunedoo	Coolah
January	67	74	69	62	62	69
February	61	82	66	59	63	67

TABLE 1

AVERAGE ANNUAL RAINFALL IN MM*

Month	Baradine	Coonabarabran	Binnaway	Mendooran	Dunedoo	Coolah
January	67	74	69	62	62	69
February	61	82	66	59	63	67
March	49	62	51	53	48	52
April	40	55	43	40	44	45
May	46	50	33	39	42	42
June	51	59	45	44	47	54
July	43	52	40	45	46	49
August	40	51	39	42	41	49
September	35	46	33	39	39	44
October	46	54	42	42	44	49
November	46	56	50	46	52	54
December	53	61	59	52	58	66
Total	577	702	570	563	586	645
No. Years Recorded	84	84	63	78	52	79

* 100 points = 25.4 mm 1 mm = approximately 4 points

TABLE II

RAINFALL PROBABILITY

These probability figures are for the property "Glendowda" which is located in the Purlewaugh district, east of Coonabarabran. Probability figures for "Glendowda" are typical of the Coonabarabran and Coolah shires, however probability figures are available for other parts of the district if required.

Probability of receiving rain during the month	MONTHS											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0 - 12 mm*	9%	18%	22%	22%	29%	22%	20%	13%	13%	23%	20%	16%
13 - 25 mm	4%	14%	10%	9%	23%	20%	22%	22%	27%	4%	20%	20%
Sub Total	13%	32%	32%	31%	52%	42%	42%	35%	40%	27%	40%	36%
26 - 37 mm	13%	7%	11%	22%	13%	11%	13%	16%	20%	20%	2%	13%
38 - 50 mm	7%	4%	11%	17%	5%	10%	16%	9%	9%	7%	9%	4%
Sub Total	20%	11%	22%	39%	18%	21%	29%	25%	29%	27%	11%	17%
51 - 75 mm	22%	22%	22%	12%	16%	20%	13%	31%	18%	11%	22%	22%
76+ mm	44%	35%	24%	18%	14%	17%	16%	9%	13%	35%	27%	24%
Sub Total	67%	57%	46%	30%	30%	37%	29%	40%	31%	46%	49%	46%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

*1 mm = approximately four points

TABLE III

TEMPERATURE - COONABARABRAN

MONTH	MEAN MAX* C^{o}	MEAN MIN C^{o}	NO. FROSTS
January	32.2	14.5	
February	31.2	14.0	

TABLE III

TEMPERATURE - COONABARABRAN

MONTH	MEAN MAX* C°	MEAN MIN C°	NO. FROSTS
January	32.2	14.5	
February	31.2	14.0	
March	28.6	11.4	
April	24.0	6.8	1
May	19.5	2.7	6
June	15.5	1.0	11
July	14.7	-0.5	17
August	16.9	0.5	15
September	20.6	3.1	7
October	24.7	6.7	1
November	28.4	10.3	-
December	30.8	12.9	-
Average	23.9	6.9	Total 58

*$C = \frac{5}{9}$ (F - 32)

TABLE IV

STATISTICS AREA SOWN TO MAJOR CROPS & STOCK NUMBERS

(Estimates 1980/81 Year)

CROPS/STOCK		COONABARABRAN SHIRE	COOLAH SHIRE
Wheat	- ha*	66,000	33,000
Barley	- ha	10,500	9,000
Oats	- ha	15,000	15,000
Triticale	- ha	2,000	2,000
Grain Sorghum	- ha	4,000	4,000
Sunflowers	- ha	5,000	2,000
Linseed & rapeseed	- ha	300	300
Lupins	- ha	2,000	1,500
Cowpeas & Mung beans	- ha	2,000	1,000
Forage Sorghums & Millets	- ha	2,000	1,500
Lucerne	- ha	30,000	35,000
Sheep No.		300,000	600,000
Cattle No.		90,000	90,000
Pigs No.		12,000	8,000

*ha = hectares 1 hectare = 2.47 acres