

ADOPTION OF BROAD-LEAVED CROPS IN NEW SOUTH WALES

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Summary. Significant areas of broad-leaved winter crops are now grown successfully every year. Agronomic packages for all possible crops need refinement. The lack of a spectrum of useful selective broad-leaved herbicides greatly restricts production expansion and management options.

INCREASED AREAS

Winter broad leaved crop production has significantly increased in the N.S.W. wheat belt. Most, if not all of these newly establishing crops are more difficult and costly to grow profitably than traditional winter cereals e.g. wheat.

Producers have been inspired by the opportunities these new crops offer in the way of diversification, improving soil fertility (both physical and organic) and controlling some pests - principally root diseases. Their enterprise in adopting this new technology within the framework of increased costs and pest problems and declining returns and soil degradation has to be admired and is illustrated in Table 1.

Table 1. Area sown to winter broad-leaved crops in N.S.W. (k ha)

Year	Rapeseed	Field Peas	Lupins	Chickpeas	Fababeans
1981/82	3.7	NS	17	NS	NS
1982/83	4.6	0.9	19	NS	NS
1983/84	9.1	0.7	22	0.6*	0.3*
1984/85	15.6	2.2	35	1.0*	0.4*
1985/86	48.5	2.0	47	7.0*	1.0*
1986/87	40.0*	33.0*	46*	17.0*	5.0*
1987/88	41.0*	65.8*	62*	17.5*	8.0*

Source: A.B.S.

* N.S.W. Department of Agriculture estimates

NS = not significant

Combined as winter broad-leaved crops they have developed into a significant industry in N.S.W. totalling 122.5 k ha in 1985/86 compared with oats, 407 k ha; barley, 587 k ha; and wheat, 3.72 m ha. Every indication is for the momentum of this development to continue.

As a result of this adoption, agronomists are under strong pressure from producers to provide detailed agronomic packages for successful production.

LIMITATIONS TO EXPANSION

Competition from weeds is the biggest single obstacle to successful growing of winter broad-leaved crops. The benefits of rotation offered by these crops are immediately reduced if weeds are not controlled, as they seed down and increase weed burdens in subsequent years. Broad-leaved species causing serious losses in these crops are shown below.

Table 2. Problem broad-leaved weeds in specific crops

Weed	Rapeseed	Field Peas	Lupins	Chickpeas	Fababeans
<i>Amsinckia</i> spp.	+	+			
<i>Arctotheca calendula</i>	+	+	+		
<i>Brassica tournefortii</i>	+			+	+
<i>Capsella bursa-pastoris</i>	+			+	+
<i>Carthamus lanathus</i>	+	+	+	+	+
<i>Chondrilla juncea</i>	+	+	+		
<i>Echium plantagineum</i>	+		+		
<i>Emex australis</i>	+	+	+		
<i>Fumaria</i> spp.	+	+	+		
<i>Lactuca saligna</i>				+	
<i>Lamium amplexicaule</i>	+	+		+	
<i>Polygonum aviculare</i>	+	+		+	+
<i>Polygonum convolvulus</i>				+	+
<i>Raphanus raphanistrum</i>	+	+	+	+	
<i>Rapistrum rugosum</i>	+			+	+
<i>Silybum marianum</i>	+	+		+	+
<i>Sisymbrium</i> spp.	+	+	+	+	+
<i>Sonchus oleraceus</i>	+			+	+

These weeds are a major hurdle to profitable, high quality yields and seriously impinge on planting strategies, paddock selection, rotations and marketing a quality product as cheaply as possible. These weeds are of current concern to producers and doubtless others will emerge. The table is not exhaustive and only indicates species requiring high priority attention. It will be very difficult to come up with answers for some species.

AVAILABLE HERBICIDES

There are serious gaps in the list of herbicides registered in N.S.W. to control the wide range of weeds infesting these crops, especially in the range of suitable broad-leaved post-emergence herbicides, as shown in Table 3.

Table 3. Broad-leaved herbicides registered in N.S.W. as at 1 May, 1987

Herbicide	Rapeseed	Field Peas	Lupins	Chickpeas	Fababeans
Clopyralid	+				
Cyanazine		+		+	
Diflufenican			+		
EPTC	+				
MCPB		+			
Methabenzthiazuron		+			
Metribuzin		+			
Simazine			+		
Trifluralin	+	+	+	+	+

Grass weed control for all of these crops is possible with a range of suitable herbicides including diclofop-methyl, fluazifop, sethoxydin, triallate and trifluralin. There is a continuing need to test new cultivars for tolerance to these herbicides.

Winter broad-leaved crops are an established industry in N.S.W. The profitable long term future and benefits of these crops depends heavily on the development of stable markets and agronomic packages - most importantly weed control strategies. Nevertheless producers have shown the way in adopting this new technology and agronomists have a responsibility to back up this major advance with suitable production packages quickly.