

## PART 4

### Section 7 Efficacy Data and Information

The summary and assessment of efficacy data prepared for individual plant protection products, should take the form of a *biological dossier* which should allow a comprehensive understanding of the application and facilitate evaluation and decision making having regard to the evaluative and decision making criteria which are relevant in the country to which application is made, notwithstanding the clear need for reference to some or all of the individual study reports during the course of evaluating the data base concerned.

The example of a summary and assessment of data which follows is intended to illustrate the approach recommended for the preparation of *Tier II* summaries and assessments. The material included has not been critically assessed for its technical content. Although based on a real submission, the data included in the following summary and evaluation have been amended to protect the commercial interests of the owner of the data.

Applicants should be aware that these guidelines are intended to provide a degree of flexibility. Where in particular cases, it is more appropriate to present the data and information in another format, applicants may do so. In such cases it is recommended that the applicant discuss the format proposed with the Regulatory Authority of the Country to which application is to be made.

### Introduction

#### i Chemx

Chemx is a new active substance belonging to the class of herbicides called sulfonylureas. The sulfonylurea herbicides have been developed relatively recently. E. I. du Pont de Nemours & Company, Inc., commercialized the first herbicides of this class, chlorsulfuron and sulfometron, in 1982. Further sulfonylurea herbicides developed subsequently include triasulfuron, metsulfuron-methyl and bensulfuron-methyl.

The sulfonylurea herbicides are attractive because of their high level of activity, which permits of their use at very low rates of application, and their limited mammalian toxicity which results in a low level of environmental risk associated with their use.

Sulfonylurea herbicides are readily absorbed by both leaves and roots and are translocated in both the symplast and apoplast. Sulfonylurea herbicides are potent inhibitors of cell division. Sulfonylureas are tightly, but reversibly bound to acetolactate synthase (ALS), which inhibits ALS activity and the synthesis of branched chain amino acids *e.g.* valine and isoleucine. In susceptible species the leaves become chlorotic, which is followed by the death of the growing points. However, in some susceptible species, the leaves may remain green but are stunted and non-competitive. The mechanism of selectivity involves differential rates of metabolism in particular species. Tolerant plant species render sulfonylurea herbicides non-phytotoxic by means of rapid degradation, whereas degradation is slow in susceptible species.

As a class, the sulfonylurea herbicides are considered to be moderately mobile in soil. The mobility of particular sulfonylurea herbicides in soil generally increases with increasing soil pH and decreasing content of soil organic matter. Chemical hydrolysis and microbial breakdown are the most important methods of sulfonylurea degradation/dissipation in soil. The rate of degradation of sulfonylurea herbicides in soil is greatest in warm, moist, light-textured, low pH soils and slowest in cold, dry, heavy-textured, high pH soils. Generally, the half-life of sulfonylurea herbicides in soil ranges from 1 week to 2 months. However, under adverse conditions the half-life of the sulfonylurea herbicides may be considerably longer (Ashton and Monaco, 1991).

ii                      **OEC 2222**

OEC 2222 is a foliar and residual herbicide designed for use as a spring post-emergence treatment in all cultivars of winter wheat. OEC 2222 suppresses the growth of couch, sterile brome and cleavers and controls a wide range of weeds including meadow brome, mayweeds and chickweed. The product is formulated as a water dispersible granule containing 80 % (w/w) of the active ingredient chemx, which has a mode of action as described above (*cf* paragraph i).

(a)      **Efficacy of the plant protection product**

In order to optimize the action of chemx, application should be carried out in the Spring when both crop and weeds are actively growing. Some weeds become less susceptible once a certain growth stage is reached and therefore should be treated while still susceptible.

The effectiveness of chemx may be reduced when applied prior to, or within a period of prolonged drought, as its activity is dependent upon the availability of a certain level of soil moisture.

(b)      **Adjuvants**

Four field trials were carried out, three in Belgium and one in Germany to determine whether the addition of an adjuvant significantly enhances the herbicidal performance of OEC 2222. The adjuvants under test were FOR 95/341 (60% solution of *Neodol 25-7* in propylene glycol), FOR 95/342 (60 % solution of *Neodol 25-9* in propylene glycol), OEC 080 (80 % *propoxylated quat*, 20% *Tween 20*) and OEC 088 (77 % ethoxylated tallow amine). Euler (1995) found that the addition of an adjuvant to OEC 2222 generally enhances its efficacy on annual broad-leaved weeds and grasses and on common couch.

*Frigate* is an adjuvant authorised for use in many countries, containing 83 % ethoxylated tallow amine. It is similar to the adjuvant OEC 088. Trials described in this *biological dossier* were conducted using the adjuvant OEC 088. On the basis of the similarity of OEC 088 and *Frigate*, it seems reasonable to extrapolate from data generated using OEC 088 to *Frigate*.

(c)      **Weeds in cereal crops**

World-wide a 10 % loss of agricultural production can be attributed to the competitive effect of weeds, in spite of intensive control of weeds in most agricultural systems (Zimdahl, 1980). Without weed control, yield losses range from 10 - 100 %, depending on the competitive ability of the crop. Therefore, weed management is one of the key elements of most agricultural systems.

Weeds compete directly with small grain crops for light, moisture, carbon dioxide and soil nutrients, and cause a reduction in crop yields as a result of shading and the smothering of crops. Weeds such as bindweed, cleavers and thistles can hinder the harvesting of cereals and increase the cost of drying the grain. In addition, weeds can act as host plants for various pests and diseases *e.g.* couch grasses are hosts for take-all and eyespot.

Winter varieties are most often infested with winter annual weeds and to a lesser extent by summer annuals that germinate in early spring. Summer annuals that germinate in the early spring primarily infest spring wheat varieties.

Chemco      September 1997      chemx (proposed ISO name)      page of

Unlike situations involving insect pests or pathogens, it is neither practical nor easy to apply the concept of threshold levels for the purposes of decision making with respect to the application of herbicides. Where there are more than 100 weed seedlings per square metre, the damaging effects on cereal crops can be very serious and one or more carefully timed herbicidal treatments may be necessary. Where there are between 10 and 100 weed seedlings per square metre, spraying costs are usually justified by the possible yield loss and the consequences of grain contamination. Lower populations (*e.g.* 1 - 10 weed seedlings per square metre) are much less damaging, especially in good vigorous crops. However, spraying can be worthwhile if the crop is thin and backward, or aggressive weeds such as cleavers are present (Wiseman *et al* 1993)

(d)      **Supporting information from earlier formulations of the active substance or similar active substances**

No other formulations containing chemx have been developed to-date. Data concerning plant protection products containing similar active substances are not available to the applicant.

(e)      **Further relevant data on the active substance and formulation**

**Details of intended use:**      Winter wheat (Crop code TRZAW). There is no effect on the treated crop.

**Details of harmful organisms against which protection is afforded**

Weeds controlled	Weed code
<i>Agropyron repens</i>	AGPRE
<i>Bromus sp.</i>	BROSP
<i>Galium aparine</i>	GALAP
<i>Stellaria media</i>	STEME
<i>Matricaria sp.</i>	MATSS

**Application rate:**      25 g of product (20 g of active ingredient) per hectare

**Concentration of active substance in material used**      The concentration of active substance, chemx, in the formulation is 800 g / kg. On the basis of the proposed recommendation for use (water volumes), the concentration in diluted spray is 0.1 - 0.08 g as / litre of spray solution.

**Method of application**      OEC 2222 is to be applied using tractor mounted hydraulic sprayers and water volumes of 200 to 250 litres per hectare.

**Maximum number of applications and their timing**      A single application is recommended, post-emergence of the crop in Spring (after February).

**For each application, growth stages of the crop or plants to be protected**      Application should be made from the three expanded true leaf stage (GS 13) onwards up to the flag leaf ligule just visible (GS 39) provided the recommended weed stages have not been exceeded.

**For each application, development stage of the harmful organisms concerned**      Application should be made when weeds are small and growing actively

**Duration of protection afforded by each application**      A single application is recommended. Duration of control is to harvest, but follow-up treatments with different products may be needed for moderately susceptible weeds.

**Minimum waiting periods or other precautions between last application and sowing or planting succeeding crops**      In the event of crop failure following treatment, winter wheat is the only crop that should be grown within the same cropping season.

**Limitations on choice of succeeding crops**      Only drill winter wheat in the Autumn following treatment. Do not drill sugar beet in the calendar year following use with OEC 2222. Any other spring crop may be drilled in the following calendar year. It is anticipated that as more data is generated, these recommendations will be further developed.

**Description of damage to rotational crops**      Chlorosis, stand and growth reduction were observed in peas, sugar beet, winter barley and winter oilseed rape.

(f)      **Proposed label text**

<b>CROP</b>	Winter Wheat
<b>VARIETIES</b>	All
<b>APPLICATION TIMING</b>	
Apply post-emergence to the crop in the Spring (after February 1st), from the three expanded true leaf stage (G.S. 13) onwards up to flag leaf ligule just visible (G.S. 39), provided the recommended weed stages have not been exceeded	
<b>PRODUCT</b>	OEC 2222
Dose Rate	25 grams per hectare
<b>PLUS</b>	
Additional recommended surfactant	0.2 % v/v

<b>WEED SPECIES CONTROLLED</b>		
<b>Broad-leaved weeds:</b>	<b>Susceptibility</b>	<b>Growth stage controlled</b>
Common Chickweed	MS	Up to 6 leaves
Mayweeds	S	Up to 4 leaves
Cleavers	MS	Up to 15 cm tall
<b>Grass Weeds</b>	<b>Susceptibility</b>	<b>Growth stage controlled</b>
Meadow brome	S	Up to mid-tillering
Sterile brome	MS	Up to early tillering
Scutch	Suppression	Up to early tillering
<b>SPECIFIC FOLLOW-UP TREATMENTS MAY BE NEEDED FOR MODERATELY SUSCEPTIBLE WEEDS AND THOSE SUPPRESSED BY OEC 2222</b>		
<b>SUSCEPTIBILITY RATINGS</b>	S = Susceptible	MS = Moderately susceptible
	Suppression = Reduction in plant biomass but incomplete control	

### III A 6.1      **Efficacy data**

#### III A 6.1.1      **Efficacy trials - laboratory or growth chamber tests (preliminary screening)**

The results of preliminary screening carried out in growth chambers for the purpose of screening the compound for potential biological activity (herbicidal, plant growth regulating, fungicidal, insecticidal, nematocidal), are not available to the applicant and consequently are not included in this *biological dossier*.

#### III A 6.1.2      **Efficacy trials - small scale field or greenhouse tests (preliminary screening)**

The results of preliminary screening carried out in greenhouse and in small scale field trials for the purpose of screening the compound for potential biological activity (herbicidal, plant growth regulating, fungicidal, insecticidal, nematocidal), are not available to the applicant and consequently are not included in this *biological dossier*.

#### III A 6.1.3      **Efficacy trials - operational, large scale**

##### **Testing facility or organization**

Data to support the label claims and which are summarized in this biological dossier were generated in a total of 104 trials, carried out in the UK, Ireland and Belgium during the period 1994 to 1997. All trials were carried out by officially recognized organisations in accordance with the Principles of *Good Experimental Practice* (GEP). Further details of the individual trials conducted are provided in Table III A 6.1.3-1.

**Table IIIA 6.1.3-1 Format for presentation of information concerning trials sites and application details in summary form**

Type of trials: effectiveness / phytotoxicity / other : effectiveness  
 Identity of the product under test (commercial name (s), active substance (s), content, formulation type (s)) : OEC 222 (WG containing 80 % w/w chemx)  
 Crop : Winter wheat  
 Harmful organism (common name, scientific name, Bayer Code) or intended use : Scutch (couch) grass, *Agropyron repens*, AGPRE  
 Responsible body for reporting trial (name, address and telephone number) : Chemco, 36 – 39 Plant Street, Marlborough, Wiltshire, England, +44.1345 6789112  
 Date of submission : September 1997

Test Report (1)	Testing Unit (2)	Trial Location (3)	Test Method Plot Size (4) Sample Size (5)	Application details			Remarks
				Method (6)	Equipment (7)	GS Harmful organism incidence (8)	
94-267-000	Agronomy Department, University College	Clonalvey, Meath, Ireland	EPPO 93, 152 & 181 6.0m x 10m (60m <sup>2</sup> ) 4 x 0.1m quadrants	Overall spray, 200 L/ha	Azo sprayer	GS 31 93 % infestation	Weed GS 25
.							
.							
.							
.							
.							

- Notes:**
- (1) Indicate the test report number including the year of establishing the trial (*e.g.* PM 96/1)
  - (2) Indicate the name, address and telephone number of the test unit
  - (3) Indicate the precise location of the trial and the country in which it was conducted (*e.g.* Rheims, France)
  - (4) Indicate the plot size
  - (5) Indicate the sample size per plot
  - (6) Indicate the method of application
  - (7) Indicate the type of equipment used
  - (8) Indicate the growth stage (s) (GS) of the crop and where relevant weeds, in accordance with the BBCH Monograph, Growth Stages of Plants, 1997, Blackwell, ISBN 3-8263-3152-4), at each application and the corresponding severity of incidence of harmful organism

**MATERIALS AND METHODS**

**Sites**

Sites were selected on the basis of soil type, in fields with a history of infestation with annual and perennial grasses and broad-leaved weeds, in areas representative of those where the crop is grown commercially

**Experimental details**

Trials were carried out to evaluate the herbicidal efficacy and crop safety of OEC 2222 when applied at a range of post emergence application timings, at a range of rates, on a range of soil types, for the control of weeds in winter wheat. Trial plot size ranged from 10m<sup>2</sup> (2.0m x 5.0m) to 60m<sup>2</sup> (6.0m x 10.0m). Plots were replicated 3 or 4 times and were arranged in a randomised block design within each trial.

Trials 105/Chemco/96/VAR/1 and 105/Chemco/96/VAR/2 were carried out at sites purposely drilled with 42 and 49 varieties of winter wheat, respectively. Plot size was 2.2m<sup>2</sup> with all plots replicated twice. Details of the varieties used are shown in Table IIIA 6.1.3-2.

**Table IIIA 6.1.3-2      Varieties tested in variety selectivity trials**

Trial 105/Chemco/96/VAR/1				Trial 105/Chemco/96/VAR/2			
Variety	GS	Variety	GS	Variety	GS	Variety	GS
Admiral	32	Lynx	32	Admiral	32	Haven	31
Axona	32	Magellan	32	Andante	32	Hereward	32
Beaufort	32	Mercia	32	Avalon	32	Hornet	32
Beaver	32	Optimist	32	Axona	32	Hunter	31-32
Brigadier	32	Raleigh	32	Beaufort	31-32	Hussar	31-32
Buster	32	Reaper	32	Beaver	31	Lynx	31-32
Cadenza	32	Rialto	32	Brigadier	31-32	Magellan	32
Caxton	32	Riband	32	Buster	32	Mercia	32
Chablis	32	Ritmo	32	Cadenza	32	Norman	32
Charger	32	Rooster	32	Caxton	32	Optimist	32
Chianti	32	Shango	32	Chablis	32	Raleigh	31
Churchill	32	Shiraz	32	Charger	32	Reaper	31-32
Consort	32	Soissons	32	Chianti	32	Rialto	32
Crofter	32	Spark	32	Churchill	31	Riband	31-32
Drake	32	Tilburi	32	Consort	31-32	Ritmo	31-32
Dynamo	32	Toucan	32	Crofter	32	Rooster	31
Encore	32	Vivant	32	Drake	31-32	Shango	31-32
Estica	32			Dynamo	31	Shiraz	31-32
Flame	32			Encore	31-32	Soissons	31
Genesis	32			Estica	31	Spark	31
Harrier	32			Flame	31-32	Tilburi	30
Haven	32			Fresco	31-32	Torfrida	32
Hereward	32			Galahad	31-32	Toucan	30
Hunter	32			Genesis	32	Vivant	30
Hussar	32			Harrier	32		

**Formulations applied and application rates**

Details of the formulations tested follow (Table IIIA 6.1.3-3), while details of application rates and timings are provided in Table IIIA 6.1.3-4.

**Table IIIA 6.1.3-3      Formulations included in efficacy trials**

Product	Authorisation Number(s)	Active substance	Active substance content	Formulation type
OEC 2222	Not available	Chemx	80% w/w	WG
OEC 088	Not available	poly-ethoxylated tallow amine	736 g/l	LI
<i>Cheetah R / Puma</i>	MAFF 04932 PCS 91585	Fenoxaprop-ethyl	60g/l	EW
<i>Eagle/Gratil</i>	MAFF 07318	Amidosulfuron	75% w/w	WG
<i>Fortrol</i>	MAFF 07009 PCS 90625	Cynazine	500g/l	SC
<i>Frigate</i>	ADJ 0128 PCS 91690	tallow amine ethoxylate	830g/l	LI
<i>Graminon</i>	Not available	Isoproturon	500g/l	SC
<i>Harmony M</i>	MAFF 03990 PCS 90724	Metsulfuron-methyl thifensulfuron-methyl	7% w/w 68% w/w	WG
<i>Lo-gran 20 WG</i>	MAFF 05993 PCS C00584	Triasulfuron	20% w/w	WG
<i>Starane 2</i>	MAFF 05496 PCS C00224	Fluroxypyr	200g/l	EC
<i>Swipe 560 EC</i>	MAFF 02057 PCS 91366	Bromoxynil ioxynil mecoprop	56g/l 56 g/l 448 g/l	EC
<i>Tolkan</i>	MAFF 06172 PCS 91429	Isoproturon	500g/l	SC

**Application methods**

Treatments were applied to all trials using a foliar plot sprayer, calibrated to apply a spray volume of 200 – 250 L/ha. Further details of the method of application used in individual trials are summarized in Tables IIIA 6.1.3-7 and IIIA 6.2.1-1 and in the individual trial reports.

**Assessment methods - weed control**

Visual assessments of the percentage weed bio-volume reduction relative to the untreated controls were made for each species in each plot. From these data, the mean percentage bio-volume reduction was calculated.



The degree of control achieved was also assessed by counting the number of plants of each species present in 4 x 0.1m<sup>2</sup> or 0.25m<sup>2</sup> quadrants/plot (depending on the individual weed density). The data thus obtained was used to calculate the mean percentage reduction in the number of plants per treatment.

**Table IIIA 6.1.3-4      Rates of application and timing of applications**

Trial reference numbers	Product	Application timing	Application rate	
			g as / ha	product / ha
94-267-000	Untreated	-	-	-
94-267-007	OEC 2222	GS 21	10	12.5 g
	OEC 088		0.2 %	
	OEC 2222	GS 21	20	25.0 g
	OEC 088		0.2 %	
	OEC 2222	GS 22	10	12.5 g
	OEC 088		0.2 %	
	OEC 2222	GS 22	20	25.0 g
	OEC 088		0.2 %	
	OEC 2222	GS 31	10	12.5 g
	OEC 088		0.2 %	
	OEC 2222	GS 31	20	25.0 g
	OEC 088		0.2 %	
	OEC 2222	GS 32	10	12.5 g
	OEC 088		0.2 %	
	OEC 2222	GS 32	20	25.0 g
	OEC 088		0.2 %	
OEC 2222	GS 37 – 39	10	12.5 g	
OEC 088		0.2 %		
OEC 2222	GS 37 - 39	20	25.0 g	
OEC 088		0.2 %		
96-152-001	Untreated	-	-	-
96-152-005	OEC 2222	GS 24 - 25	10	12.5 g
	OEC 088		0.2 %	
96-259-004	OEC 2222	GS 24 - 25	20	25.0 g
	OEC 088		0.2 %	
96-152-006	Untreated	-	-	-
96-152-022	OEC 2222	GS 25 - 31	10	12.5 g
	OEC 088		0.2 %	
96-259-001	OEC 2222	GS 25 - 31	10	12.5 g
	<i>Frigate</i>		0.2 %	
	OEC 2222	GS 25 - 31	20	25.0 g
	<i>Frigate</i>		0.2 %	

Table IIIA 6.1.3-4		Continued		
Trial reference numbers	Product	Application	Application rate	
		Timing	g as / ha	product / ha
94-267-003	Untreated	-	-	-
94-267-005	OEC 2222	GS 22 - 25	10	12.5 g
94-267-006	OEC 2222	GS 22 - 25	20	25.0 g
94-267-008	OEC 2222	GS 22 - 25	40	50.0 g
94-267-009	OEC 2222	GS 22 - 25	20	25.0 g
94-267-010	OEC 088		0.2 %	
94-267-018	OEC 2222	GS 31 - 33	10	12.5 g
	OEC 2222	GS 31 - 33	20	25.0 g
	OEC 2222	GS 31 - 33	40	50.0 g
	OEC 2222	GS 31 - 33	20	25.0 g
	OEC 088		0.2 %	
95-157-037	Untreated	GS 29 - 31	-	-
95-157-050	OEC 2222	GS 29 - 31	10	12.5 g
95-157-056	OEC 2222	GS 29 - 31	15	18.75 g
95-157-061	OEC 2222	GS 29 - 31	20	25.0 g
	OEC 2222	GS 29 - 31	40	50.0 g
	OEC 2222	GS 29 - 31	10	12.5 g
	OEC 088		0.2 %	
	OEC 2222	GS 29 - 31	15	18.75 g
	OEC 088		0.2 %	
96-12-34-271	Untreated	GS 31 - 33	-	-
96-12-34-272	OEC 2222	GS 31 - 33	10	12.5 g
96-12-34-273	<i>Frigate</i>		0.2 %	
	OEC 2222	GS 31 - 33	20	25.0 g
	<i>Frigate</i>		0.2 %	
	OEC 2222		40	50.0 g
	<i>Frigate</i>		0.2 %	
95-157-051	Untreated	-	-	-
	OEC 2222	GS 29	10	12.5 g
	OEC 2222	GS 29	15	18.75 g
	OEC 2222	GS 29	20	25.0 g
	OEC 2222	GS 30	10	12.5 g
	OEC 2222	GS 30	15	18.75 g
	OEC 2222	GS 30	20	25.0 g

Table IIIA 6.1.3-4		Continued		
Trial reference numbers	Product	Application		Application rate
		Timing	g as / ha	product / ha
	OEC 2222	GS 31	10	12.5 g
	OEC 2222	GS 31	15	18.75 g
	OEC 2222	GS 31	20	25.0 g
	OEC 2222	GS 33	10	12.5 g
	OEC 2222	GS 33	15	18.75 g
	OEC 2222	GS 33	20	25.0 g
	OEC 2222	GS 37	10	12.5 g
	OEC 2222	GS 37	15	18.75 g
	OEC 2222	GS 37	20	25.0 g
96-152-024	Untreated	-	-	-
96-152-025	OEC 2222 <i>Frigate</i>	GS 31	10 0.2 %	12.5 g
94-267-015	Untreated	-	-	-
94-267-022	OEC 2222	GS 14	10	12.5 g
94-387-119	OEC 2222	GS 14	20	25.0 g
94-387-120	OEC 2222	GS 14	40	50.0 g
94-387-121	OEC 2222	GS 14	20	25.0 g
94-387-122	OEC 088		0.2 %	
94-450-180	<i>Eagle</i>	GS 14	30	40.0 g
	<i>Swipe 560 EC</i>	GS 14	2520	4.5 l
	<i>Gratil</i>	GS 14		
	<i>Cheetah R</i>	GS 14	150	2.5 l
95-157-045, 95-157-046	Untreated	-	-	-
95-157-047, 95-157-048	OEC 2222	before GS 39	10	12.5 g
95-157-053, 95-157-057	OEC 2222	before GS 39	15	18.75 g
95-157-062, 95-157-065	OEC 2222	before GS 39	20	25.0 g
95-157-074, 95-157-075	OEC 2222	before GS 39	40	50.0 g
95-157-076, 95-269-052	<i>Harmony M</i>	before GS 39	5/51	75.0 g
95-269-053				
95-157-036	Untreated	-	-	-
95-157-049	OEC 2222	before GS 39	10	12.5 g
95-157-050	OEC 2222	before GS 39	15	18.75 g
95-157-055	OEC 2222	before GS 39	20	25.0 g
95-157-063	OEC 2222	before GS 39	40	50.0 g

Chemco      September 1997      chemx (proposed ISO name)      page of

<b>Table IIIA 6.1.3-4      Continued</b>				
Trial reference numbers	Product	Application	Application rate	
		Timing	g as / ha	product / ha
95-157-064	<i>Harmony M</i>	before GS 39	5/51	75.0 g
	<i>Harmony M</i>	before GS 39	10/102	150.0 g
95-157-068	Untreated	-	-	-
95-157-069	OEC 2222	before GS 39	10	12.5 g
95-157-070	OEC 2222	before GS 39	15	18.75 g
95-157-071	OEC 2222	before GS 39	20	25.0 g
95-157-072	OEC 2222	before GS 39	40	50.0 g
95-157-073	<i>Harmony M</i>	before GS 39	5/51	75.0 g
	<i>Harmony M</i>	before GS 39	10/102	150.0 g
96-152-002	Untreated	-	-	-
96-259-002	OEC 2222	GS 23 - 31	10	12.5 g
	OEC 2222	GS 23 - 31	15	18.75 g
	OEC 2222	GS 23 - 31	20	25.0 g
	OEC 2222	GS 23 - 31	10	12.5 g
	OEC 088		0.2 %	
	OEC 2222	GS 23 - 31	15	18.75 g
	OEC 088		0.2 %	
	OEC 2222	GS 23 - 31	20	25.0 g
	OEC 088		0.2 %	
	<i>Graminon</i>	GS 23 - 31	1500	3.0 l
96-152-009	Untreated	-	-	-
96-152-010	OEC 2222	GS 30 - 32	10	12.5 g
96-259-003	OEC 2222	GS 30 - 32	10	12.5 g
	OEC 088		0.2 %	
	OEC 2222	GS 30 - 32	10	12.5 g
	<i>Frigate</i>		0.2 %	
	OEC 2222	GS 30 - 32	20	25.0 g
	<i>Frigate</i>		0.2 %	
	OEC 2222	GS 30 - 32	40	50.0 g
	<i>Frigate</i>		0.2 %	
<i>Tolkan</i>	GS 30 - 32	2000	4.0 l	
<i>Fortrol</i>		875	1.75 l	
95-157-038	Untreated	-	-	-
95-157-052	OEC 2222	GS 21 - 23	10	12.5 g
95-157-058	OEC 2222	GS 21 - 23	15	18.75 g

<b>Table IIIA 6.1.3-4      Continued</b>				
Trial reference numbers	Product	Application	Application rate	
		Timing	g as / ha	product / ha
95-269-051	OEC 2222	GS 21 – 23	20	25.0 g
	OEC 2222	GS 21 – 23	40	50.0 g
	OEC 2222	GS 21 – 23	10	12.5 g
	OEC 088		0.2 %	
	OEC 2222	GS 21 – 23	15	18.75 g
	OEC 088		0.2 %	
	OEC 2222	GS 21 – 23	20	25.0 g
	OEC 088		0.2 %	
	<i>Eagle</i>	GS 21 – 23	30	40.0 g
<i>Starane</i>	GS 21 – 23	200	1.0 l	
<i>Harmony M</i>	GS 21 – 23	5/51	75.0 g	
94-298-146	Untreated	-	-	-
94-298-147	OEC 2222	GS 25	10	12.5 g
94-298-148	OEC 2222	GS 25	20	25.0 g
	OEC 2222	GS 25	40	50.0 g
	<i>Lo-gran 20 WG</i>	GS 25	20	100.0 g
	<i>Lo-gran 20 WG</i>	GS 25	40	200.0 g
	Untreated	-	-	-
96-152-003	Untreated	-	-	-
96-152-004	OEC 2222	GS 37 - 39	10	12.5 g
96-152-007	OEC 088		0.2 %	
96-152-008	OEC 2222	GS 37 – 39	20	25.0 g
96-152-012	OEC 088		0.2 %	
96-152-023	OEC 2222	GS 37 – 39	40	50.0 g
	OEC 088		0.2 %	
	<i>Lo-gran 20 WG</i>	GS 37 – 39	20	100.0 g
96-152-040	Untreated	-	-	-
96-152-041	OEC 2222	GS 39	10	12.5 g
96-152-042	OEC 2222	GS 39	20	25.0 g
96-152-043	OEC 2222	GS 39	10	12.5 g
96-152-044	<i>Frigate</i>		0.2 %	
96-152-045	OEC 2222	GS 39	20	25.0 g
	<i>Frigate</i>		0.2 %	
	OEC 2222	GS 39	40	50.0 g
	<i>Frigate</i>		0.2 %	
<i>Harmony M</i>	GS 39	5/51	75.0 g	

Chemco      September 1997      chemx (proposed ISO name)      page of

<b>Table IIIA 6.1.3-4      Continued</b>				
Trial reference numbers	Product	Application	Application rate	
		Timing	g as / ha	product / ha
	<i>Harmony M</i>	GS 39	10/102	150.0 g
105/Chemco/96/VAR/1	Untreated	-	-	-
105/Chemco/96/VAR/1	OEC 2222	GS 32	10	12.5 g
	<i>Frigate</i>		0.2 %	
	OEC 2222	GS 32	20	25.0 g
	<i>Frigate</i>		0.2 %	
	<i>Lo-gran 20 WG</i>	GS 32	15	75.0 g
97-148-001	Untreated	-	-	-
97-148-002	OEC 2222	GS 32 - 33	10	12.5 g
97-148-003	OEC 088		0.2 %	
97-148-004	OEC 2222	GS 32 – 33	10	12.5 g
97-148-005	<i>Frigate</i>		0.2 %	
97-148-006	OEC 2222	GS 32 – 33	20	25.0 g
	OEC 088		0.2 %	
	OEC 2222	GS 32 – 33	20	25.0 g
	<i>Frigate</i>		0.2 %	
	<i>Tolkan</i>	GS 32 – 33	2000	4.0 l
	<i>Fortrol</i>		875	1.75 l
94-450-181	Untreated	-	-	-
	OEC 2222	11.05.94	10	12.5 g
	OEC 088		0.2 %	
	OEC 2222	11.05.94	20	25.0 g
	OEC 088		0.2 %	
	OEC 2222	11.05.94	40	50.0 g
	OEC 088		0.2 %	
	<i>Tolkan</i>	11.05.94	1200	2.4 l
94-450-182	Untreated	-	-	-
	OEC 2222	22.04.94	10	12.5 g
	OEC 088		0.2 %	
	OEC 2222	22.04.94	20	25.0 g
	OEC 088		0.2 %	
	OEC 2222	22.04.94	40	50.0 g
	OEC 088		0.2 %	
	<i>Tolkan</i>	22.04.94	1200	2.4 l
	<i>Gratil</i>	22.04.94	30	40.0 g
94-450-184	Untreated	-	-	-

Chemco      September 1997      chemx (proposed ISO name)      page of

<b>Table IIIA 6.1.3-4      Continued</b>					
<b>Trial reference numbers</b>	<b>Product</b>	<b>Application</b>		<b>Application rate</b>	
		<b>Timing</b>	<b>g as / ha</b>	<b>product / ha</b>	
	OEC 2222	28.04.94	10	12.5 g	
	OEC 2222	28.04.94	20	25.0 g	
	OEC 2222	28.04.94	10	12.5 g	
	OEC 088		0.2 %		
	OEC 2222	28.04.94	20	25.0 g	
	OEC 088		0.2 %		
94-450-185	Untreated	-	-	-	
	OEC 2222	07.05.94	10	12.5 g	
	OEC 088		0.2 %		
	OEC 2222	07.05.94	20	25.0 g	
	OEC 088		0.2 %		
95-294-035	Untreated	-	-	-	
	OEC 2222	28.04.94	10	12.5 g	
	OEC 2222	28.04.94	20	25.0 g	
	OEC 2222	28.04.94	10	12.5 g	
	OEC 088		0.2 %		
	OEC 2222	28.04.94	20	25.0 g	
	OEC 088		0.2 %		
	<i>Gratil</i>	28.04.94	30	40.0 g	
	<i>Starane 2</i>	28.04.94	200	1.0 l	
95-294-039	Untreated	-	-	-	
	OEC 2222	GS 29	10	12.5 g	
	OEC 2222	GS 29	20	25.0 g	
	<i>Gratil</i>	GS 29	15	20.0 g	
	<i>Gratil</i>	GS 29	30	40.0 g	
	<i>Starane 2</i>	GS 29	200	1.0 l	
95-294-040	Untreated	-	-	-	
95-294-041	OEC 2222	GS 29 - 30	10	12.5 g	
	OEC 2222	GS 29 - 30	20	25.0 g	
	<i>Tolkan</i>	GS 29 - 30	1000	1.2 l	
95-294-042	Untreated	-	-	-	
	OEC 2222	GS 29	10	12.5 g	
	OEC 2222	GS 29	20	25.0 g	

Chemco      September 1997      chemx (proposed ISO name)      page of

<b>Table IIIA 6.1.3-4      Continued</b>					
Trial reference numbers	Product	Application		Application rate	
		Timing	g as / ha	product / ha	
	OEC 2222	GS 29	10	12.5 g	
	OEC 088		0.2 %		
	OEC 2222	GS 29	20	25.0 g	
	OEC 088		0.2 %		
96-300-002	Untreated	-	-	-	
96-300-063	OEC 2222	GS 29 - 31	10	12.5 g	
	OEC 2222	GS 29 - 31	20	25.0 g	
	OEC 2222	GS 29 - 31	10	12.5 g	
	OEC 088		0.2 %		
	OEC 2222	GS 29 - 31	20	25.0 g	
	OEC 088		0.2 %		
96-300-005	Untreated	-	-	-	
	OEC 2222	GS 31	10	12.5 g	
	OEC 088		0.2 %		
	OEC 2222	GS 31	20	25.0 g	
	OEC 088		0.2 %		
96-300-008	Untreated	-	-	-	
	OEC 2222	GS 31	20	25.0 g	
	OEC 2222	GS 31	20	25.0 g	
	OEC 088		0.2 %		
	Untreated	-	-	-	
96-300-061	Untreated	-	-	-	
96-300-067	OEC 2222	GS 31 - 33	10	12.5 g	
	OEC 2222	GS 31 - 33	20	25.0 g	
97-453-010	Untreated	-	-	-	
97-453-011	OEC 2222	GS 32 - 33	10	12.5 g	
97-453-014	OEC 088		0.2 %		
97-453-015	OEC 2222	GS 32 - 33	10	12.5 g	
97-453-016	<i>Frigate</i>		0.2 %		
97-453-018	OEC 2222	GS 32 - 33	20	25.0 g	
	OEC 088		0.2 %		
	OEC 2222	GS 32 - 33	20	25.0 g	
	<i>Frigate</i>		0.2 %		



Chemco      September 1997      chemx (proposed ISO name)      page of

---

In trial XX, 3 x 1m<sup>2</sup> quadrants/plot were assessed and in trials YY, YY and ZZ, 5 x 1m<sup>2</sup> quadrants/plot were assessed and from the data generated, the mean percentage reduction in the number of plants per treatment was calculated.

In Trials 96-16-40-271, 96-16-40-272 and 96-16-40-273 weed control was also assessed by measuring the height of couch plants in untreated and treated plots and from these data the mean percentage reduction in couch height was calculated

### Assessment methods – crop yield

Plots were harvested using a small plot combine harvester. Grain moisture content was recorded to allow conversion of the results to t/ha at 15 % moisture content.

### Assessment methods – crop safety

Crop safety was assessed on an overall plot basis, as the mean % leaf area affected by chlorosis and necrosis. In Trials 105/Chemco/96/VAR/1 and 105/Chemco/96/VAR/2 crop safety was assessed on a 0-100 scale, where 0 = no damage and 100 = complete crop destruction.

### Assessment methods – safety in following crop

Phytotoxicity in the following crops was assessed, 1 and 2 years after application. Crops were examined for effects such as stand reduction, growth reduction. The mean % leaf area affected by either chlorosis or necrosis was recorded.

Details of assessment dates, the assessment types and crop growth stages are provided in Table IIIA 6.1.3-5. The information included in the table is that used to support the proposed label claims. Further assessments were carried out in individual trials, which are fully described in the individual trial reports.

### Statistical analysis

Data were analysed using two-way analysis of variance (ANOVA) on untransformed and transformed data. The probability of no significant differences occurring between treatment means was calculated as the F probability value (pF). Significant differences reported where the pF value was greater than 0.05 should be interpreted with caution as these are derived at correspondingly lower levels of confidence than the generally accepted 95 % confidence limit.

Duncan's Multiple Range (DMR) test was then applied to assess any treatment differences identified on the basis of the ANOVA TEST. Results obtained are indicated by a letter - treatment means with no letters in common are significantly different in accordance with a DMR conducted at a 95% confidence level.

Where data have been transformed, treatment means in the trial report are presented in their untransformed state, with the appropriate letter test derived from the transformed ANOVA. Plot mean data, analysis details of untransformed data, and analysis details of any data subjected to transformation/detransformation are included in the individual trial reports.

The tabulated data presented in this *biological dossier* only represents the means of selected treatments, within an assessment. However, the statistics presented in conjunction with these data are derived from all data points from all treatments within the assessment. Tables of data comprising all treatment means are presented in the individual trial reports.

Where appropriate, treatment effects are reported in terms of a percentage of the untreated control. The values for the untreated control are indicated in individual table keys.

**Table IIIA 6.1.3-5      Details of assessments carried out in efficacy tests with OEC 2222**

<b>Trial no</b>	<b>Assessment date</b>	<b>Crop growth stage<sup>a</sup></b>	<b>Assessment type</b>
94-267-000	11.07.94	45	% Chlorosis
	12.09.94	-	% Weed control (visual)
94-267-003	29.07.94	85	% Weed control (visual)
	20.07.95	-	% Weed control (count)
94-267-005	01.08.94	85	% Weed control (visual)
94-267-006	27.07.94	83	% Weed control (visual)
	27.07.95	-	% Weed control (count)
	27.08.94	92	Yield
94-267-007	21.06.94	65	% Chlorosis
	27.07.94	83	% Weed control
94-267-008	02.08.94	87	% Weed control (visual)
	02.05.95	-	Phytotoxicity in following crop
94-267-009	02.08.94	87	% Weed control (visual)
	07.07.95	-	% Weed control (count)
	02.05.95	-	Phytotoxicity in following crop
94-267-010	02.08.94	85	% Weed control (visual)
	19.05.95	-	Phytotoxicity in following crop
94-267-015	09.06.94	41	% Weed control (visual)
94-267-018	22.07.94	-	% Weed control (visual)
	24.07.95	-	% Weed control (visual)
	06.09.94	92	Yield
94-267-022	29.06.94	65	% Weed control (visual)
94-298-146	11.05.94	-	% Chlorosis
	08.08.94	92	Yield (WEED FREE)
	31.10.94	-	Phytotoxicity in following crop
	05.12.94	-	Phytotoxicity in following crop
	19.05.95	-	Phytotoxicity in following crop
	09.08.95	-	Phytotoxicity in following crop
94-298-147	10.05.94	-	% Weed control (visual) % Chlorosis
	20.06.94	-	% Chlorosis
	14.08.94	92	Yield
	01.11.94	-	Phytotoxicity in following crop
	02.12.94	-	Phytotoxicity in following crop
	25.04.95	-	Phytotoxicity in following crop

<b>Table IIIA 6.1.3-5</b>		<b>Continued</b>		
<b>Trial no</b>	<b>Assessment date</b>	<b>Crop growth stage<sup>a</sup></b>	<b>Assessment type</b>	
94-298-148	10.05.94	-	% Chlorosis	
	20.06.94	-	% Chlorosis	
	07.08.94	92	Yield (WEED FREE)	
94-298-148	06.12.94	-	Phytotoxicity in following crop	
	24.10.95	-	Phytotoxicity in following crop	
	07.11.95	-	Phytotoxicity in following crop	
	27.02.96	-	Phytotoxicity in following crop	
	04.06.96	-	Phytotoxicity in following crop	
94-387-119	07.06.94	57	% Weed control (visual)	
	08.07.94	75	% Weed control (visual)	
94-387-120	06.06.94	57	% Weed control (visual)	
	02.05.95	-	Phytotoxicity in following crop	
94-387-121	21.04.94	25	% Chlorosis	
	16.06.94	57	% Weed control (visual) % Chlorosis	
	21.11.94	-	Phytotoxicity in following crop	
94-387-122	21.04.94	25	% Chlorosis	
	17.06.94	57	% Weed control (visual) % Chlorosis	
94-450-180	02.07.94	-	% Weed control (visual)	
94-450-181	02.07.94	-	% Weed control (visual)	
94-450-182	02.07.94	-	% Weed control (visual)	
94-450-184	02.07.94	-	% Weed control (visual)	
94-450-185	01.07.94	-	% Weed control (visual)	
95-157-036	19.05.95	-	% Chlorosis	
	22.06.95	-	% Weed control (visual)	
	03.05.96	-	Phytotoxicity in following crop	
95-157-037	05.05.95	39	% Chlorosis	
	27.06.95	-	% Weed control (visual) % Weed control (counts)	
	14.08.95	94	Yield	
95-157-038	04.05.95	39	% Chlorosis	
	21.06.95	-	% Weed control (visual)	
	29.04.96	-	Phytotoxicity in following crop	

Chemco      September 1997      chemx (proposed ISO name)      page of

<b>Table IIIA 6.1.3-5</b>		<b>Continued</b>	
<b>Trial no</b>	<b>Assessment date</b>	<b>Crop growth stage<sup>a</sup></b>	<b>Assessment type</b>
95-157-045	12.05.95	37	% Weed control (visual) % Chlorosis
	05.07.95		% Weed control (visual)
95-157-046	22.05.95	39	% Weed control (visual) % Chlorosis
	22.06.95	-	% Weed control (visual)
	03.05.96	-	Phytotoxicity in following crop
95-157-047	17.05.95	39	% Weed control (visual) % Chlorosis
	30.11.95	-	Phytotoxicity in following crop
95-157-048	22.05.95	31	% Weed control (visual) % Chlorosis
95-157-049	09.05.95	-	% Chlorosis
	21.06.95	-	% Weed control (visual)
	23.04.96	-	% Chlorosis
95-157-050	03.05.95	-	% Chlorosis
	16.06.95	-	% Weed control (visual)
	23.04.96	-	Phytotoxicity in following crop
95-157-051	13.04.95	31	% Chlorosis
	01.05.95	33	% Chlorosis
	15.05.95	37	% Chlorosis
	15.06.95	69	% Chlorosis % Weed control (visual)
	25.07.95	87	% Weed control (counts)
	29.03.96	-	% Weed control (visual)
	05.08.95	93	Yield
	11.10.95	-	Phytotoxicity in following crop
	29.03.96	-	Phytotoxicity in following crop
95-157-052	21.04.95	31	% Chlorosis
	19.06.95	-	% Weed control (visual)
95-157-053	24.04.95	31	% Weed control (visual) % Chlorosis
95-157-055	24.04.95	-	% Weed control (visual) % Chlorosis
	20.06.95	-	% Weed control (visual)

Chemco      September 1997      chemx (proposed ISO name)      page of

<b>Table IIIA 6.1.3-5</b>		<b>Continued</b>	
<b>Trial no</b>	<b>Assessment date</b>	<b>Crop growth stage<sup>a</sup></b>	<b>Assessment type</b>
95-157-056	12.05.95	39	% Chlorosis % Weed control (visual)
	20.06.95	-	% Weed control (visual)
	02.08.96	-	% Weed control (visual)
	12.08.95	93	Yield
	10.05.95	-	Phytotoxicity in following crop
95-157-057	24.04.95	31	% Chlorosis
	16.05.95	31	% Weed control (visual)
	23.06.95	-	% Weed control (visual)
	18.01.96	-	Phytotoxicity in following crop
95-157-058	18.05.95	33	% Chlorosis
	21.06.95	-	% Weed control (visual)
95-157-061	24.05.95	39	% Chlorosis
	12.06.95	-	% Weed control (visual)
	26.07.95	-	% Weed control (visual) % Weed control (counts)
	02.08.96	-	% Weed control (visual)
	12.08.95	92	Yield
	10.12.95	-	Phytotoxicity in following crop
95-157-062	03.05.95	33	% Chlorosis
	30.05.95	-	% Weed control (visual)
	30.11.95	-	Phytotoxicity in following crop
95-157-063	10.05.95	-	% Chlorosis
	26.05.95	-	% Weed control (visual)
	10.12.95	-	Phytotoxicity in following crop
95-157-064	03.05.95	-	% Chlorosis
	12.06.95	-	% Weed control (visual)
	18.01.96	-	Phytotoxicity in following crop
95-157-065	03.05.95	33	% Weed control (visual) % Chlorosis
95-157-068	06.07.95	65	% Chlorosis
	30.08.95	93	Yield (WEED FREE)
95-157-069	08.07.95	62	% Chlorosis
	21.08.95	93	Yield (WEED FREE)
95-157-070	10.07.95	65	% Chlorosis

Chemco      September 1997      chemx (proposed ISO name)      page of

<b>Table IIIA 6.1.3-5</b>		<b>Continued</b>	
<b>Trial no</b>	<b>Assessment date</b>	<b>Crop growth stage<sup>a</sup></b>	<b>Assessment type</b>
	27.08.95	93	Yield (WEED FREE)
95-157-071	29.06.95	-	% Chlorosis
	10.08.95	93	Yield (WEED FREE)
95-157-072	29.06.95	-	% Chlorosis
	12.08.95	93	Yield (WEED FREE)
95-157-073	29.06.95	-	% Chlorosis
	14.08.95	93	Yield (WEED FREE)
	25.10.95	-	Phytotoxicity in following crop
	16.09.96	-	Phytotoxicity in following crop
95-157-074	12.05.95	39	% Weed control (visual) % Chlorosis
95-157-075	12.06.95	59	% Weed control (visual) % Chlorosis
95-157-076	03.11.95	-	Phytotoxicity in following crop
	05.11.95	-	Phytotoxicity in following crop
95-269-050	09.05.95	32	% Chlorosis % Weed control (visual)
	16.06.95	-	% Weed control (visual) % Weed control (counts)
95-269-051	09.05.95	32	% Chlorosis
	15.06.95	65	% Weed control (visual)
	04.01.96	-	Phytotoxicity in following crop
95-269-052	09.05.95	32	% Chlorosis
	15.06.95	-	% Weed control (visual)
95-269-053	09.05.95	32	% Chlorosis
	15.06.95	-	% Weed control (visual)
	23.10.95	-	Phytotoxicity in following crop
95-294-035	20.06.95	-	% Weed control (visual)
95-294-039	20.06.95	-	% Weed control (visual)
95-294-040	07.07.95	-	% Weed control (visual)
95-294-041	12.06.95	-	% Weed control (visual)
95-294-042	07.07.95	-	% Weed control (visual)
96-12-34-271	07.06.96	-	% Chlorosis
	12.09.96	87	% Weed control (visual)
	14.09.96	93	Yield

Chemco September 1997 chemx (proposed ISO name) page of

<b>Table IIIA 6.1.3-5</b>		<b>Continued</b>	
<b>Trial no</b>	<b>Assessment date</b>	<b>Crop growth stage<sup>a</sup></b>	<b>Assessment type</b>
96-12-34-272	12.09.96	87	% Weed control (visual)
	17.09.96	93	Yield
96-12-34-273	07.06.96	-	% Chlorosis
	12.09.96	87	% Weed control (visual)
	18.09.96	93	Yield
96-152-001	22.04.96	32	% Chlorosis
	03.05.96	39	% Chlorosis
	14.05.96	41	% Chlorosis
	02.08.96	65	% Weed control (counts)
96-152-002	15.05.96	39	% Chlorosis
	19.06.96	92	% Weed control (visual)
	02.09.96	92	Yield
96-152-003	14.05.96	39	% Chlorosis
96-152-004	14.05.96	39	% Chlorosis
	11.06.96	55	% Chlorosis
	22.11.96	-	Phytotoxicity in following crop
96-152-005	12.05.96	39	% Chlorosis
	10.06.96	60	% Weed control (visual)
	07.09.96	93	Yield
96-152-006	17.06.96	65	% Chlorosis
	07.07.96	69	% Weed control (visual)
	06.09.96	92	Yield
	11.12.96	-	Phytotoxicity in following crop
96-152-007	14.06.96	57	% Chlorosis
96-152-008	14.06.96	59	% Chlorosis
96-152-009	13.05.96	33	% Chlorosis
	09.07.96	93	% Weed control (visual)
96-152-010	06.06.96	39	% Chlorosis
	09.07.96	93	% Weed control (visual)
	17.08.96	93	Yield
	12.12.96	-	Phytotoxicity in following crop
96-152-012	24.06.96	73	% Chlorosis
	02.09.96	93	Yield (WEED FREE)
96-152-022	12.05.96	32	% Chlorosis



Chemco September 1997 chemx (proposed ISO name) page of

<b>Table IIIA 6.1.3-5</b>		<b>Continued</b>	
<b>Trial no</b>	<b>Assessment date</b>	<b>Crop growth stage<sup>a</sup></b>	<b>Assessment type</b>
	16.07.96	51	% Weed control (visual)
	17.08.96	93	Yield
96-152-023	26.06.96	65	% Chlorosis
	28.08.96	93	Yield (WEED FREE)
96-152-024	09.07.96	-	% Chlorosis
	31.07.96	-	% Weed control (visual)
	-	-	Yield
96-152-025	09.07.96	-	% Chlorosis
	31.07.96	-	% Weed control (visual)
	-	-	Yield
96-152-040	07.06.96	57	% Chlorosis
	04.09.96	93	Yield (WEED FREE)
96-152-041	07.06.96	43	% Chlorosis
	30.08.96	93	Yield (WEED FREE)
96-152-042	09.07.96	75	% Chlorosis
	07.09.96	93	Yield (WEED FREE)
96-152-043	15.06.96	55	% Chlorosis
	14.09.96	93	Yield (WEED FREE)
96-152-044	08.06.96	55	% Chlorosis
	26.08.96	93	Yield (WEED FREE)
96-152-045	15.06.96	51	% Chlorosis
	10.09.96	93	Yield (WEED FREE)
96-259-001	30.05.96	37	% Chlorosis
	18.07.96	75	% Weed control (visual)
	16.08.96	92	Yield
	11.02.97	-	Phytotoxicity in following crop
96-259-002	27.06.96	-	% Weed control (visual)
			% Chlorosis
		93	Yield
	12.02.97	-	Phytotoxicity in following crop
96-259-003	10.05.96	-	% Chlorosis
	10.07.96	-	% Weed control (visual)
	27.01.97	-	Phytotoxicity in following crop
96-259-004	30.05.96	37	% Chlorosis

Chemco September 1997 chemx (proposed ISO name) page of

<b>Table IIIA 6.1.3-5</b>		<b>Continued</b>	
<b>Trial no</b>	<b>Assessment date</b>	<b>Crop growth stage<sup>a</sup></b>	<b>Assessment type</b>
	16.07.96	65	% Weed control (visual)
105/Chemco/96/VAR/1	17.05.96	-	Crop safety
	24.05.96	-	Crop safety
105/Chemco/96/VAR/2	23.05.96	-	Crop safety
	06.06.96	-	Crop safety
96-300-002	27.06.96	-	% Weed control (visual)
96-300-005	27.06.96	-	% Weed control (visual)
96-300-008	27.06.96	-	% Weed control (visual)
96-300-061	01.07.96	-	% Weed control (visual)
96-300-063	27.06.96	-	% Weed control (visual)
96-300-067	01.07.96	-	% Weed control (visual)
97-148-001	13.05.97	33	% Weed control (visual)
	29.05.97	45	% Weed control (visual)
97-148-002	19.05.97	39	% Weed control (visual)
97-148-003	20.05.97	41	% Weed control (visual)
97-148-004	12.05.97	33	% Weed control (visual)
	26.05.97	43	% Weed control (visual)
97-148-005	12.05.97	33	% Weed control (visual)
	30.05.97	39	% Weed control (visual)
97-148-006	13.05.97	33	% Weed control (visual)
	30.05.97	41	% Weed control (visual)
97-453-010	26.05.97	35	% Weed control (visual)
97-453-011	27.05.97	37	% Weed control (visual)
97-453-014	28.05.97	35	% Weed control (visual)
97-453-015	02.06.97	39	% Weed control (visual)
97-453-016	01.06.97	45	% Weed control (visual)
97-453-018	01.06.97	39	% Weed control (visual)

Key: <sup>a</sup> BBCH Growth Stage

### III A 6.1.3.1      **Summary and evaluation of individual trials results – Scutch (Common couch) grass (*Agropyron repens*), AGPRE**

**Proposed label claim:** OEC 2222 is a foliar and residual herbicide for the suppression or couch grass in winter wheat

For suppression of scutch, apply with a surfactant, post-emergence after 1 February, between crop GS 13 to GS 39, provided the recommended weed stage (up to GS early tillering), has not been exceeded

Scutch grass is the most important perennial grass weed in Europe. Data are presented from 32 trials conducted in the UK and Ireland in the period 1994 to 1997 (Tables III A 6.1.3-6, III A 6.1.3-7, III A 6.1.3-8 and III A 6.1.3-24). Application rates of 10, 15, 20 and 40 g as / ha were tested. The minimum rate required to give consistent results was found to be 20 g / as / ha which corresponds to 25 g product / ha. Currently there are no approved products for the suppression or control of scutch during the critical development period of winter wheat crops (from GS 30 to GS 79). Consequently reference products were not included in any of the trials reported.

In some 10 trials, application was made to scutch grass at growth stages between 12 and 19. The level of control improved from an average of 30 % at a rate of 12.5g product / ha to an average of 55 % at 25 g product / ha between 31 to 41 days after treatment (DAT).



**Table IIIA 6.1.3-7 Effectiveness data for OEC 2222 – *Agropyron repens***

Identity of the product under test (commercial name (s), active substance (s), content, formulation type (s)) : OEC 2222 (WG containing 80 % w/w chemx)  
 Crop : Winter wheat  
 Harmful organism (common name, scientific name, Bayer Code) or intended use : Scutch (Common couch) grass, *Agropyron repens*, AGPRE  
 Responsible body for reporting trial (name, address and telephone number) : Chemco, 36 – 39 Plant Street, Marlborough, Wiltshire, England, +.44.1345 6789112  
 Date of submission : September 1997

Test Report	Testing Unit GEP (1)	Country Region	Dates of trial and GS (2)	Cultivar F / G (3) N / A (4)	Experimental Design (5) Test method (6) Replicates	Treatments					Yield	Efficacy (% of control) (11)	Remarks (12)
						Active substances (7)	Products (8)	Rate (9)					
								Kg as/ha	L/ha water	Number Interval (10)			
94-267-000	Agronomy Dept., UCD Yes	Clonalvey, Meath, Ireland	24.03 94 to 12.09.94 GS 30	Brigadier F N	RCB EPPO 93					1 (24.03.94)			
						Control	-	-	-	172 DAT		(172)	
						Chemx Tallow amine	OEC 2222 (80% w/w WG) OEC 088 (736 g/L)	0.01 0.2 %	200	172 DAT		7	
						Chemx Tallow amine	OEC 2222 (80% w/w WG) OEC 088 (736 g/L)	0.02 0.2 %	200	172 DAT		40	Weed GS 24

- Notes**
- (1) Indicate with a “Yes” or “No” if the principles of GEP were applied
  - (2) Dates of commencement and completion of the trial and growth stage (GS) at first and last treatment
  - (3) F = field trial, G = glasshouse trial (indicate with “F” or “G” for each trial)
  - (4) N = natural infestation, A = artificial inoculation (indicate with “N” or “A” for each trial)
  - (5) Indicate the type of experimental design used (*e.g.* randomized complete block), using abbreviations
  - (6) Indicate the test guideline used (*e.g.* Guidelines for the efficacy evaluation of fungicides - *Rhizoctonia solani* on potato, EPPO PP 1/32, Guidelines for the efficacy evaluation of pesticides - Design and analysis of efficacy evaluation trials, EPPO No 152 and Conduct and reporting of efficacy evaluation trials, EPPO No 181)
  - (7) Identify the standard (reference products) used with an “S” and control plots with the word “control” for each experiment
  - (8) Indicate the commercial name, the as content and the type of formulation for the test product and reference products
  - (9) Adjust the units used as appropriate, *e.g.* kg/tonne for seed treatments
  - (10) Indicate the total number of treatments and the interval between treatments in days (*e.g.* 5, 14)
  - (11) Indicate the plant part assessed in the title of the column (*e.g.* Efficacy on leaves (% of control)) and indicate statistical significance for each trial and treatment. In the case of the untreated plot, indicate in parenthesis the percentage infestation.
  - (12) Provide information as relevant to the particular experiment *e.g.* soil type, leaf or leaves assessed *etc.*

**Table IIIA 6.1.3-7 Effectiveness data for OEC 2222 – *Agropyron repens* (Continued)**

Test Report	Testing Unit GEP (1)	Country Region	Dates of trial and GS (2)	Cultivar F / G (3) N / A (4)	Experimental Design (5) Test method (6) Replicates	Treatments					Yield	Efficacy (% of control) (11)	Remarks (12)
						Active substances (7)	Products (8)	Rate (9)					
								Kg as/ha	L/ha water	Number Interval (10)			
94-267-000	Agronomy Dept., UCD Yes	Clonalvey, Meath, Ireland	24.03 94 to 12.09.94 GS 31	Brigadier F N	RCB EPPO 93					1 (08.04.94)			
						Control	-	-	-	157 DAT		(87)	
						Chemx Tallow amine	OEC 2222 (80% w/w WG) OEC 088 (736 g/L)	0.01 0.2 %	200	157 DAT		33	
						Chemx Tallow amine	OEC 2222 (80% w/w WG) OEC 088 (736 g/L)	0.02 0.2 %	200	157 DAT		35	Weed GS 25
94-267-000	Agronomy Dept., UCD Yes	Clonalvey, Meath, Ireland	24.03 94 to 12.09.94 GS 31	Brigadier F N	RCB EPPO 93					1 (25.04.94)			
						Control	-	-	-	140 DAT		(77)	
						Chemx Tallow amine	OEC 2222 (80% w/w WG) OEC 088 (736 g/L)	0.01 0.2 %	200	140 DAT		43	
						Chemx Tallow amine	OEC 2222 (80% w/w WG) OEC 088 (736 g/L)	0.02 0.2 %	200	140 DAT		93	Weed GS 25

**Table IIIA 6.1.3-7 Effectiveness data for OEC 2222 – *Agropyron repens* (Continued)**

Test Report	Testing Unit GEP (1)	Country Region	Dates of trial and GS (2)	Cultivar F / G (3) N / A (4)	Experimental Design (5) Test method (6) Replicates	Treatments					Yield	Efficacy (% of Control) (11)	Remarks (12)
						Active substances (7)	Products (8)	Rate (9)					
								Kg as/ha	L/ha water	Number Interval (10)			
94-267-000	Agronomy Dept., UCD Yes	Clonalvey, Meath, Ireland	24.03 94 to 12.09.94 GS 32	Brigadier F N	RCB EPP0 93					1 (10.05.94)			
						Control	-	-	-	125 DAT		(93)	
						Chemx Tallow amine	OEC 2222 (80% w/w WG) OEC 088 (736 g/L)	0.01 0.2 %	200	125 DAT		88	
						Chemx Tallow amine	OEC 2222 (80% w/w WG) OEC 088 (736 g/L)	0.02 0.2 %	200	125 DAT		95	Weed GS 32
94-267-000	Agronomy Dept., UCD Yes	Clonalvey, Meath, Ireland	24.03 94 to 12.09.94 GS 32	Brigadier F N	RCB EPP0 93					1 (25.05.94)			
						Control	-	-	-	110 DAT		(100)	
						Chemx Tallow amine	OEC 2222 (80% w/w WG) OEC 088 (736 g/L)	0.01 0.2 %	200	110 DAT		98	
						Chemx Tallow amine	OEC 2222 (80% w/w WG) OEC 088 (736 g/L)	0.02 0.2 %	200	110 DAT		100	Weed GS 32

Table IIIA 6.1.3-7 Effectiveness data for OEC 2222 – *Agropyron repens* (Continued)

Test Report	Testing Unit GEP (1)	Country Region	Dates of trial and GS (2)	Cultivar F / G (3) N / A (4)	Experimental Design (5) Test method (6) Replicates	Treatments					Yield	Efficacy (% of Control) (11)	Remarks (12)
						Active substances (7)	Products (8)	Rate (9)					
								Kg as/ha	L/ha water	Number Interval (10)			
94-267-000	Agronomy Dept., UCD Yes	Clonalvey, Meath, Ireland	24.03 94 to 12.09.94 GS 37	Brigadier F N	RCB EPP0 93					1 (08.06.94)			
						Control	-	-	-	96 DAT		(93)	
						Chemx Tallow amine	OEC 2222 (80% w/w WG) OEC 088 (736 g/L)	0.01 0.2 %	200	96 DAT		30	
						Chemx Tallow amine	OEC 2222 (80% w/w WG) OEC 088 (736 g/L)	0.02 0.2 %	200	96 DAT		40	Weed GS 34
94-267-003	Chemco, UK Yes	Loscour, Gloucs UK	06.04 94 to 20.07.95 GS 22	Mercia F N	RCB EPP0 93					1 (06.04.94)			
						Control	-	-	-	114 DAT		(17)	Means followed by the
						Chemx	OEC 2222 (80% w/w WG)	0.01	200	114 DAT		73	same letter do not significantly differ
						Chemx	OEC 2222 (80% w/w WG)	0.02	200	114 DAT		73	according to Duncan's MRT initiated at the 95 %
						Chemx	OEC 2222 (80% w/w WG)	0.04	200	114 DAT		88	confidence level
						Chemx Tallow amine	OEC 2222 (80% w/w WG) OEC 088 (736 g/L)	0.02 0.2 %	200	114 DAT		68	Weed GS 32



Table IIIA 6.1.3-7 Effectiveness data for OEC 2222 – *Agropyron repens* (Continued)

Test Report	Testing Unit GEP (1)	Country Region	Dates of trial and GS (2)	Cultivar F / G (3) N / A (4)	Experimental Design (5) Test method (6) Replicates	Treatments					Yield	Efficacy (% of Control) (11)	Remarks (12)
						Active substances (7)	Products (8)	Rate (9)					
								Kg as/ha	L/ha water	Number Interval (10)			
94-267-003	Chemco, UK Yes	Loscour, Gloucs UK	06.04 94 to 20.07.95 GS 22	Mercia F N	RCB EPP0 93					1 (06.04.94)			
						Control	-	-	-	470 DAT		(17) ab	Means followed by the same letter do not significantly differ according to Duncan's MRT initiated at the 95 % confidence level Weed GS 32
						Chemx	OEC 2222 (80% w/w WG)	0.01	200	470 DAT		34 bcd	
						Chemx	OEC 2222 (80% w/w WG)	0.02	200	470 DAT		42 bcd	
						Chemx	OEC 2222 (80% w/w WG)	0.04	200	470 DAT		59 d	
						Chemx Tallow amine	OEC 2222 (80% w/w WG) OEC 088 (736 g/L)	0.02 0.2 %	200	470 DAT		40 bcd	
						Glyphosate (S)	Roundup (S) (360 g/L SL)	1.080	200	470 DAT		69 d	

•  
•  
•  
•  
•  
•  
•  
•  
•

Continued (to include the findings from all 32 trials)

**Table IIIA 6.1.3-8 OEC 2222 - % Control of *Agropyron repens* – Summary**

Trial		94-267-007	94-267-007	96-152-006	94-267-003	94-267-006	94-267-018	95-157-061	95-157-061
Application date		11.04.94	25.04.94	12.05.96	06.04.94	11.04.94	13.04.94	02.05.95	02.05.95
Crop GS at application		21	22	31	22	23	13	32	32
Weed GS at application		12	13	13	14	14	14	14	14
Assessment date		27.07.94	27.07.94	07.07.96	29.07.94	27.07.94	22.07.94	12.06.95	26.07.95
Days after first application		107	93	56	114	107	100	41	85
Treatment	G as/ha								
Untreated (no/m <sup>2</sup> or % cover)	-	110 b	110 b	16 c	17	87 e	150 e	25 e	25 e
OEC 2222	10	-	-	-	73	57 c	53 cd	21 d	33 d
OEC 2222	15	-	-	-	-	-	-	40 c	33 d
OEC 2222	20	-	-	-	73	86 ab	68 bc	50 b	54 c
OEC 2222	40	-	-	-	88	87 ab	85 ab	83 a	90 a
OEC 2222	10	70 a	67 a	98 a	-	-	-	88 a	86 ab
OEC 088	0.2%	-	-	-	-	-	-	86 a	94 a
OEC 2222	15	-	-	-	-	-	-	-	-
OEC 088	0.2%	-	-	-	-	-	-	-	-
OEC 2222	20	91 a	75 a	-	68	88-ab	83 ab	-	-
OEC 088	0.2%	-	-	-	-	-	-	-	-
OEC 2222	40	-	-	-	-	-	-	-	-
OEC 088	0.2%	-	-	-	-	-	-	-	-
OEC 2222	10	-	-	93 ab	-	-	-	-	-
<i>Frigate</i>	0.2%	-	-	-	-	-	-	-	-
OEC 2222	20	-	-	95 ab	-	-	-	-	-
<i>Frigate</i>	0.2%	-	-	-	-	-	-	-	-
OEC 2222	40	-	-	-	-	-	-	-	-
<i>Frigate</i>	0.2%	-	-	-	-	-	-	-	-

Key: Values in Italics are % ground cover of weed

Continued.....

---

Chemco	September 1997	chemx (proposed ISO name)	page of
--------	----------------	---------------------------	---------

---

The activity of OEC 2222 was significantly improved with the addition of a surfactant, which increased herbicide retention on leaves. Levels of control 100 to 114 days after treatment were shown to be 61 % for OEC 2222 at an application rate of 12.5 g product / ha, 76 % for OEC 2222 at an application rate of 25 g product / ha and 80 % for OEC 2222 at an application rate of 25g product / ha + OEC 088 at an application rate of 0.2 % v/v product / ha. No significant difference was apparent in the level of control achieved with either of the surfactants used - *Frigate* at 0.2 % v/v product / ha and OEC 088 at 0.2 % v/v product / ha. The level of control some 125 days after treatment was reduced (54 %) as a result of re-growth of rhizomes in these early growth stage treatments.

In 13 trials, treatments were applied where scutch was at GS 20 to GS 29, at a range of infestation levels. A single application of OEC 2222 (12.5 g product / ha), OEC 2222 (25 g product / ha) or OEC 2222 (25 g product / ha) + OEC 088 (0.2 % v/v product / ha) resulted in control of scutch corresponding to values of 51 %, 59 % and 73 % respectively up to 104 days after treatment. Some evidence of suppression was still evident one year after a GS 29 treatment.

In 11 trials, single applications of OEC 2222 (12.5 product / ha), OEC 2222 (25 g product / ha) and OEC 2222 + OEC 088 (25 g product / ha + 0.2 % v/v product / ha) made between GS 30 and GS 32 resulted in average control levels of 57 %, 65 % and 84 % respectively 71 to 87 days after treatment.

Applications of 12.5 g product / ha, occasionally resulted in similar levels of effectiveness to those achieved using 25 g product / ha. However, greater consistency was achieved using 25 g product / ha and it is therefore proposed that the appropriate rate of use of OEC 2222 is 25 g product / ha with the addition of 0.2 % v/v of a recommended surfactant.

It is suggested that the mean level of scutch control achieved using OEC 2222 + OEC 088 (25 g + 0.2 % v/v product / ha) is commercially acceptable. The suppression of scutch during crop development can help to maintain both quality and yield, through a reduction in competition for nutrients and a decrease in the risk of lodging and other problems associated with high levels of green matter at harvest.

**It is submitted that the proposed label claim of suppression of couch grass using OEC 2222 at 25 g product / ha, with the addition of a surfactant, is justified.**

### IIIA 6.1.3.2      **Summary and evaluation of individual trials results – Sterile brome (*Bromus sterilis*), BROST**

<p><b>Proposed label claim:</b> OEC 2222 is a foliar and residual herbicide for the control of sterile brome in winter wheat</p> <p>For control of sterile brome (moderately susceptible), apply with a surfactant, post-emergence after 1 February, between crop GS 13 to GS 39, provided the recommended weed stage (up to GS early tillering), has not been exceeded</p>
---

Sterile brome is the most common brome species in European wheat and is increasingly becoming a problem where reduced tillage operations are practised. There is currently no herbicide commercially available which provides a high level of control of this weed species.

Some 19 trials were conducted in the UK in which OEC 2222 was applied to sterile brome, between 1994 and 1997 (Tables IIIA 6.1.3.9\*, IIIA 6.1.3.10\*, IIIA 6.1.3.11\* and IIIA 6.1.3-24). The reference products included in the trials reported were *Cheetah R* (60 g/L fenoxaprop-ethyl) at 2.5 L product / ha, *Eagle* (750 g/kg amidosulfuron) at 40 g product / ha, *Harmony M* (7 % w/w metsulfuron-methyl + 68 % w/w thifensulfuron-methyl) at 75 g product / ha and *Tolkan* (500 g/L isoproturon) + *Fortrol* (500 g/L cyanazine) at 4 L product + 1.75 L product / ha.

\* Tables equivalent to Tables IIIA 6.1.3.6, IIIA 6.1.3.7 and IIIA 6.1.3.8, but relating to trials results on sterile brome.

Levels of control achieved were high, especially when the product was applied between weed growth stages 13 and 29. Control levels generally ranged between 84 % and 94 % n - there were a few instances of up to 100 % control. The minimum rate of application necessary to achieve a consistent level of control was 25 g product / ha with a surfactant at 0.2 % v/v product / ha. No significant difference was apparent in the level of control achieved using OEC 2222 with either of the surfactants used - *Frigate* at 0.2 % v/v product / ha and OEC 088 at 0.2 % v/v product / ha.

**It is submitted that the proposed label claim that sterile brome up to early tillering is moderately susceptible to OEC 2222 at 25 g product / ha, with the addition of a surfactant, is justified.**

### IIIA 6.1.3.3      Summary and evaluation of individual trials results – Meadow brome (*Bromus commutatus*), BROCO

**Proposed label claim:** OEC 2222 is a foliar and residual herbicide for the control of meadow brome in winter wheat

For control of meadow brome, apply with a surfactant, post-emergence after 1 February, between crop GS 13 to GS 39, provided the recommended weed stage (up to GS mid-tillering), has not been exceeded

Three trials were carried out on meadow brome in the UK in 1994 and 1995 (Tables IIIA 6.1.3.12\*, IIIA 6.1.3.13\*, IIIA 6.1.3.14\* and IIIA 6.1.3-24). The reference products included in the trials reported were *Cheetah R* (60 g/L fenoxaprop-ethyl) at 2.5 L product / ha and *Harmony M* (7 % w/w metsulfuron-methyl + 68 % w/w thifensulfuron-methyl) at 75 g product / ha. Levels of control achieved were excellent at a rate of application of 25 g product / ha, with a surfactant 0.2 % v/v product / ha.

\* Tables equivalent to Tables IIIA 6.1.3.6, IIIA 6.1.3.7 and IIIA 6.1.3.8, but relating to trials results on meadow brome.

**It is submitted that the proposed label claim that meadow brome up to mid-tillering is susceptible to OEC 2222 at 25 g product / ha, with the addition of a surfactant, is justified.**

### III A 6.1.3.4      **Summary and evaluation of individual trials results – cleavers (*Gallium aparine*), GALAP**

**Proposed label claim:** OEC 2222 is a foliar and residual herbicide for the control of cleavers in winter wheat

For control of cleavers (moderately susceptible), apply with a surfactant, post-emergence after 1 February, between crop GS 13 to GS 39, provided the recommended weed stage (GS up to 15 cm tall), has not been exceeded

The results of 17 trials conducted in the UK in the period 1994 to 1996 were reported (Tables III A 6.1.3.15\*, III A 6.1.3.16\*, III A 6.1.3.17\* and III A 6.1.3-24). The reference products included in the trials reported were *Eagle* (750 g/kg amidosulfuron) at 40 g product / ha, *Harmony M* (7 % w/w metsulfuron-methyl + 68 % w/w thifensulfuron-methyl) at 75 g product / ha, *Swipe 560 EC* (56 g/L bromoxynil + 56 g/L ioxynil + 448 g/L mecoprop) at 4.5 L product / ha and *Starane 2* (200 g/L fluroxypyr) at 1 L product / ha. The results obtained demonstrate that cleavers are moderately susceptible to OEC 2222 when the product is applied between weed GS 12 to 23. Control is significantly improved when a surfactant is added. While adequate levels of control were achieved in some trials using an application rate of 12.5g product / ha, greater consistency was achieved when a rate of 25g product / ha was used.

\* Tables equivalent to Tables III A 6.1.3.6, III A 6.1.3.7 and III A 6.1.3.8, but relating to trials results on cleavers.

**It is submitted that the proposed label claim that cleavers up to 15 cm tall are moderately susceptible to OEC 2222 at 25 g product / ha, with the addition of a surfactant, is justified.**

### III A 6.1.3.5      **Summary and evaluation of individual trials results – mayweeds (*Matricaria spp.*), MATSS**

**Proposed label claim:** OEC 2222 is a foliar and residual herbicide for the control of mayweeds in winter wheat

For control of mayweeds (moderately susceptible), apply with a surfactant, post-emergence after 1 February, between crop GS 13 to GS 39, provided the recommended weed stage (GS up to 4 leaves), has not been exceeded

The results of some 25 trials with OEC 2222 for the control of mayweed conducted in the United Kingdom and Belgium during the period 1994 to 1996 were reported (Tables III A 6.1.3.18\*, III A 6.1.3.19\*, III A 6.1.3.20\* and III A 6.1.3-24). The reference products included in the trials reported were *Eagle* (750 g/kg amidosulfuron) at 40 g product / ha, *Harmony M* (7 % w/w metsulfuron-methyl + 68 % w/w thifensulfuron-methyl) at 75 g product / ha and *Swipe 560 EC* (56 g/L bromoxynil + 56 g/L ioxynil + 448 g/L mecoprop) at 4.5 L product / ha. The results obtained demonstrated that OEC 2222 has good activity against mayweeds, although the level of control achieved was not as consistently high as that obtained using the standard treatment Harmony M. The levels of control achieved following application at 12 g, 18.75 g, 25 g and 50 g were 43 %, 45 %, 54 % and 67 %, respectively, some 32 - 34 days after treatment. The levels of control improved to 67 %, 66 %, 82 % and 85 % by 71 to 78 days after treatment. There was however a wide range of variation around these mean figures. The minimum rate of application necessary to give consistent results was 25g product / ha. The level of control achieved was significantly improved by the addition of a surfactant.

\* Tables equivalent to Tables III A 6.1.3.6, III A 6.1.3.7 and III A 6.1.3.8, but relating to trials results on mayweeds.

**It is submitted that the proposed label claim that mayweeds up to the 4 leaf stage are moderately susceptible to OEC 2222 at 25 g product / ha, with the addition of a surfactant, is justified.**

### III A 6.1.3.6      **Summary and evaluation of individual trials results – common chickweed (*Stellaria media*), STEME**

**Proposed label claim:** OEC 2222 is a foliar and residual herbicide for the control of common chickweed in winter wheat

For control of common chickweed (moderately susceptible), apply with a surfactant, post-emergence after 1 February, between crop GS 13 to GS 39, provided the recommended weed stage (GS up to 6 leaves), has not been exceeded

The results of 13 trials with OEC 2222 for the control of common chickweed conducted in the UK in the period 1994 - 1996 were reported (Tables III A 6.1.3.21\*, III A 6.1.3.22\*, III A 6.1.3.23\* and III A 6.1.3-24). The reference products included in the trials reported were *Eagle* (750 g/kg amidosulfuron) at 40 g product / ha, *Harmony M* (7 % w/w metsulfuron-methyl + 68 % w/w thifensulfuron-methyl) at 75 g product / ha and *Swipe 560 EC* (56 g/L bromoxynil + 56 g/L ioxynil + 448 g/L mecoprop) at 4.5 L product / ha. The level of control was shown to improve and be more consistent following application of 25 g product / ha as compared to application of 12.5 g product /ha. The 25 g product / ha rate of application is therefore recommended. Levels of control achieved ranged from 68 % to 100 % depending on rate of application and timing of treatment. The addition of a surfactant to the spray mixture (*Frigate* or OEC 088 at 0.2 % v/v), greatly improved the activity of OEC 2222 against chickweed - levels of control achieved with the mixture were close to 100 %.

\* Tables equivalent to Tables III A 6.1.3.6, III A 6.1.3.7 and III A 6.1.3.8, but relating to trials results on common chickweed.

**It is submitted that the proposed label claim that common chickweed up to the 6 leaf stage is moderately susceptible to OEC 2222 at 25 g product / ha, with the addition of a surfactant, is justified.**

### III A 6.1.3.7      **Procedures for cleaning application equipment**

**Proposed label recommendations:** Application equipment should be cleaned using ALL CLEAR EXTRA Sprayer Cleaner, specifically made for sulfonylurea herbicides. Alternatively the following instructions can be followed:

1. Immediately after spraying, drain tank completely. Any contamination on the outside of the spraying equipment should be removed by washing with clean water.
2. Rinse inside of tank with clean water and flush through booms and hoses using at least one-tenth of the spray tank volume. Drain tank completely.
3. Half fill tank with clean water and add 1/3 L household ammonia (contains 9.5 % ammonia) for each 100 L of tank volume. (Equivalent amounts of alternate strength ammonia solutions can be used providing the final concentration the full tank is 0.03 %). Agitate and then flush the boom and hoses with the cleaning solution. Top-up with water making sure the tank is completely full and allow to stand for 15 minutes with agitation. Again flush the boom and hoses and drain tank completely. Tank-washings should be disposed of safely using approved means.

---

Chemco	September 1997	chemx (proposed ISO name)	page of
--------	----------------	---------------------------	---------

---

In an experiment reported on by Meuler (1996a), it was demonstrated that the method proposed successfully removed residues from conventional field sprayers.

12 g of OEC 2222 was added to 100 L water in the spray tank of a conventional hydraulic ground sprayer (model: *Technoma Debimat 1000*). After spaying, the tank was emptied completely and the whole sprayer (tank, pipes and nozzles) was rinsed thoroughly with clear water and emptied again. 100 L of water was pored into the tank to which 0.25 L sodium hypochlorite was added. After running the stirrer for 10 minutes, the boom was rinsed and the sprayer was emptied completely. The sprayer was rinsed with clear water to eliminate bleach. A further 100 L of clear water was added to tank. A sample was taken for chemical analysis. The water was applied to plots containing young sugar beet plants (18 x 250m), for the purposes of detecting the biological activity of any remaining traces of OEC 2222.

No phytotoxic effects were observed on the treated sugar beet. The sample taken for analysis was found not to contain any chemx residues. It was concluded that no traces of OEC 2222 were present after cleaning the sprayer as proposed.

#### IIIA 6.1.3.8    **Effects of climate**

<b>Proposed label recommendations:</b>	The best results with OEC 2222 are from treatments made when the weeds are small and growing actively, in the early Spring. Dry weather conditions for any extended period before or after application may result in reduced weed control.  Avoid application of OEC 2222 in climatic conditions that cause dormancy in the weeds - these include severe drought, waterlogging, frost and strong cold winds.
--	--

Kirch and Meuler (1996) and Geard and Mueler (1995) reported two trials conducted to determine the influence of application timing on the efficacy of OEC 2222 on couch, with particular emphasis on the effects of climatic conditions and growth factors. It was found that soil moisture, air temperature and scutch (couch) grass height/growth stage at time of application, influence the effectiveness of OEC 2222. It was concluded that the product should be sprayed under good growing conditions - no dry stress, sufficient air temperature and couch foliage.

#### IIIA 6.1.4      **Effects on yield and quality**

##### IIIA 6.1.4.1    **Effects on quality of plants or plant products**

..... (in the interest of brevity, the remainder of the text, is omitted)

##### IIIA 6.1.4.2    **Effects on transformation processes**

..... (in the interest of brevity, the remainder of the text, is omitted)

### IIIA 6.1.4.3      **Effects on yield of treated plants or plant products**

Effects of OEC 2222 treatment on yield were assessed in both effectiveness trials and in phytotoxicity trials. Yield data in the pytoxicity trials are based on weed free conditions for the purpose of ensuring that the yield response resulting from control of weeds does not mask any negative yield effects resulting from treatment. In the case of the effectiveness trials, the yield data presented related to treatments with weeds present so that the extent of the yield response following application could be compared to the yields obtained in untreated control plots.

#### IIIA 6.1.4.3.1      **Effects on yield of treated plants or plant products – weed free conditions**

A total of 16 trials were taken to yield and assessed for effects on yield (Table IIIA 6.1.4-1). In general there were no significant detrimental effects on the yield of winter wheat following a single application of either OEC 2222 (25g product/ha) or OEC 2222 + OEC 088 (25g + 0.2% v/v product/ha).

There were no significant reductions in the yield compared with the untreated controls following a single application of OEC 2222 + *Frigate* at the proposed rate of application (25g + 0.2% v/v product/ha), or at the twice the proposed rate of application (50 g + 0.2 % v/v product/ha). The relative yield increases/decreases followed the same trends as occurred with the reference products.

However, in two trials (96-152-012 and 96-152-023 there was a reduction in yield following treatment with OEC 2222 + OEC 088 (25g + 0.2% v/v product/ha). The reduction observed was believed to reflect the dry conditions and poor crop establishment at these sites. There were no significant reductions in the yield compared with the untreated controls following a single application of OEC 2222 + *Frigate* at the proposed rate of application (25g + 0.2% v/v product/ha), or at the twice the proposed rate of application (50 g + 0.2 % v/v product/ha). The relative yield increases/decreases followed the same trends as occurred with the reference products.



Table IIIA 6.1.3-24 Overall summary of OEC 2222 effectiveness trials data

Weeds (1)	Number of trials (2)	Efficacy achieved - 25 g product / ha + 0.2 % OEC 088 (736 g/L)		Reference Product (s) and application rate (g Or L product / ha)	Efficacy of reference product	
		mean (3)	Limits (4)		mean (3)	limits (4)
<b>Scutch (Common couch) grass (<i>Agropyron repens</i>), AGPRE</b>	32	x	xx to xx	None available	-	-
<b>Sterile brome (<i>Bromus sterilis</i>), BROST</b>	19	x	xx to xx	<i>Cheetah R</i> 2.5 L / ha <i>Eagle</i> 40 g / ha <i>Harmony M</i> 75 g / ha <i>Tolkan + Fortrol</i> 4 L + 1.75 L / ha	x	xx to xx
<b>Meadow brome (<i>Bromus commutatus</i>), BROCO</b>	3	x	xx to xx	<i>Cheetah R</i> 2.5 L / ha <i>Harmony M</i> 75 g / ha	x x	xx to xx xx to xx
<b>Cleavers (<i>Gallium aparine</i>), GALAP</b>	17	x	xx to xx	<i>Eagle</i> 40 g / ha <i>Harmony M</i> 75 g / ha <i>Swipe</i> 4.5 L / ha <i>Starane 2</i> 1 L / ha	x x x x	xx to xx xx to xx xx to xx xx to xx
<b>Mayweeds (<i>Matricaria spp.</i>), MATSS</b>	25	x	xx to xx	<i>Eagle</i> 40 g / ha <i>Harmony M</i> 75 g / ha <i>Swipe</i> 4.5 L / ha	x x x	xx to xx xx to xx xx to xx
<b>Common chickweed (<i>Stellaria media</i>), STEME</b>	13	x	xx to xx	<i>Eagle</i> 40 g / ha <i>Harmony M</i> 75 g / ha <i>Swipe</i> 4.5 L / ha	x x x	xx to xx xx to xx xx to xx

**Notes:** (1) List of weeds found in the trials (common and scientific name, Bayer code)

(2) Number of trials in which the weed was found

(3) Mean efficacy - totality of trials

(4) Limits of efficacy observed

**Table IIIA 6.1.4-1 Yield response to OEC 2222 treatment – weed free conditions**

Trial		94-298-146	94-298-148	96-152-045	96-152-041	96-152-043	96-152-040	96-152-023	96-152-044
Application date		11.04.94	11.04.94	14.05.96	29.04.96	18.05.96	29.04.96	01.06.96	09.05.96
Crop GS at application		25	25	30	31	32	33	37	37
Assessment date		08.08.94	07.08.94	10.09.96	30.08.96	14.09.96	04.09.96	28.08.96	26.08.96
Days after first application		119	118	119	123	119	128	88	109
Treatment	g as/ha								
Untreated (tonnes per hectare)	-	8.35 a	8.49 a	5.92 a	9.86 ab	8.7 a	12.47 ab	7.66 a	5.11 a
OEC 2222	10	100 a	108 a	110 a	104 ab	90 ab	102 ab	-	98 a
OEC 2222	15	-	-	-	-	-	-	-	-
OEC 2222	20	101 a	110 a	110 a	99 ab	92 ab	99 ab	-	100 a
OEC 2222	40	100 a	108 a	-	-	-	-	-	-
OEC 2222	10	-	-	100 a	-	-	-	93 a	-
OEC 088	0.2%								
OEC 2222	15	-	-	-	-	-	-	-	-
OEC 088	0.2%								
OEC 2222	20	-	-	106 a	-	-	-	70 b	-
OEC 088	0.2%								
OEC 2222	40	-	-	-	-	-	-	48 c	-
OEC 088	0.2%								
OEC 2222	10	-	-	-	98 ab	87 b	102 ab	-	98 a
<i>Frigate</i>	0.2%								
OEC 2222	20	-	-	-	101 ab	92 ab	106 a	-	92 a
<i>Frigate</i>	0.2%								
OEC 2222	40	-	-	100 a	91 b	88 ab	102 ab	-	96 a
<i>Frigate</i>	0.2%								
<i>Lo-gran 20 WG</i>	20	99 a	108 a	-	-	-	-	93 a	-
<i>Lo-gran 20 WG</i>	40	98 a	103 a	-	-	-	-	-	-
<i>Harmony M</i>	5+51	-	-	108 a	105 a	94 ab	93 b	-	97 a
<i>Harmony M</i>	10+102	-	-	107 a	102 ab	93 ab	101 ab	-	94 a

**Table IIIA 6.1.4-1 Continued**

<b>Trial</b>		<b>95-157-068</b>	<b>95-157-069</b>	<b>95-157-070</b>	<b>95-157-071</b>	<b>95-157-072</b>	<b>95-157-073</b>	<b>96-152-012</b>	<b>96-152-042</b>
Application date		05.06.95	10.06.95	10.06.95	23.05.95	23.05.95	22.05.95	04.06.96	07.06.96
Crop GS at application		39	39	39	39	39	39	39	39
Assessment date		30.08.95	21.08.95	27.08.95	10.08.95	12.08.95	14.08.95	02.09.96	07.09.96
Days after first application		86	72	78	79	81	84	90	92
Treatment	g as/ha								
Untreated (tonnes per hectare)	-	7.9 b	11.47 a	10.8 a	9.26 abc	8.61 a	8.98 a	9.83 a	10.93 a
OEC 2222	10	100 b	102 a	96 a	101 abc	96 a	95 a	-	96 a
OEC 2222	15	108 a	102 a	101 a	102 abc	98 a	93 a	-	-
OEC 2222	20	108 a	104 a	105 a	103 abc	99 a	98 a	-	97 a
OEC 2222	40	100 b	95 a	100 a	108 a	95 a	93 a	-	-
OEC 2222	10	-	-	-	-	-	-	100 a	93 a
OEC 088	0.2%								
OEC 2222	15	-	-	-	-	-	-	-	-
OEC 088	0.2%								
OEC 2222	20	-	-	-	-	-	-	91 b	94 a
OEC 088	0.2%								
OEC 2222	40	-	-	-	-	-	-	96 ab	95 a
OEC 088	0.2%								
OEC 2222	10	-	-	-	-	-	-	-	-
<i>Frigate</i>	0.2%								
OEC 2222	20	-	-	-	-	-	-	-	-
<i>Frigate</i>	0.2%								
OEC 2222	40	-	-	-	-	-	-	-	-
<i>Frigate</i>	0.2%								
<i>Lo-gran 20 WG</i>	20	-	-	-	-	-	-	99 a	-
<i>Lo-gran 20 WG</i>	40	-	-	-	-	-	-	-	-
<i>Harmony M</i>	5+51	99 b	95 a	103 a	98 bc	98 a	99 a	-	102 a
<i>Harmony M</i>	10+102	103 ab	96 a	105 a	105 ab	99 a	103 a	-	94 a

However, in two trials (96-152-012 and 96-152-023 there was a reduction in yield following treatment with OEC 2222 + OEC 088 (25g + 0.2% v/v product/ha). The reduction observed was believed to reflect the dry conditions and poor crop establishment at these sites.

### IIIA 6.1.4.3.2 Effects on yield of treated plants or plant products – weeds not removed

A total of 20 trials were taken to yield and assessed for effects on yield effects (Table IIIA 6.1.4-2).

In trial 94-267-018, a single application of either OEC 2222 (25 g product/ha) or of OEC 2222 + OEC 088 (25 g + 0.2 % v/v product/ha) at crop GS 13, resulted in significant increases in yield, corresponding to 156 % and 155 % of the values for the control treatment, respectively.

In trials 94-267-006, 94-298-147, 95-157-051, 95-157-037, 95-157-056, 96-152-005 and 96-152-002 a single application of OEC 2222 (25 g product/ha) applied between crop GS 23 and 29 resulted in an increased yield, corresponding to a mean value of 121 % of the untreated control (ranging from 108 % to 158 %). The yield increases reported were generally statistically significant. In trials 94-267-006 and 96-152-002, a single application of OEC 2222 + OEC 088 (25 g + 0.2 % v/v product/ha), applied at crop GS 23, resulted in statistically significant increases in yield of winter wheat, corresponding to values of 121 % and 169 %, respectively, relative to the untreated control plots. Furthermore, there were no significant reductions in yield following a single application between crop GS 23 and 29 of OEC 2222 at application rates of 12.5 g, 18.75 g or 50 g product/ha.

In trial 96-152-022, a single application of OEC 2222 + *Frigate* (12.5g + 0.2 % v/v product/ha) resulted in an increase in yield similar to and not significantly lower than that resulting from a single application of OEC 2222 + OEC 088 (12.5 g + 0.2 % v/v product/ha). It therefore is reasonable to assume that, other things being equal, treatment with a single application of OEC 2222 (25 g product/ha) plus either the surfactant *Frigate* (0.2 % v/v) or OEC 088 (0.2 % v/v) will result in equivalent final yields of winter wheat.

In trials 94-267-006, 94-267-018, 95-157-061, 95-157-051 and 96-259-002, a single application of OEC 2222 (25 g product/ha) applied between crop GS 30 and 37, resulted in an increase in yield, corresponding to a mean value of 113 % (ranging from 95 % to 169 %) of the untreated control. In trials 96-12-34-271, 96-12-34-272, 96-12-34-273, 96-152-010, 96-259-001 and 96-152-006, a single application of OEC 2222 + *Frigate* (25 g + 0.2 % v/v product/ha), applied between crop GS 31 and 33, resulted in a mean yield increase of 133 % (ranging from 106 % to 166 %). That yield increase was greater than the yield increase reported in trials 94-267-006, 94-267-018 and 96-267-002. In the latter trials, a single application of OEC 2222 + OEC 088 (25 g + 0.2 % v/v product/ha) applied at crop GS 31, resulted in a statistically significant increase in yield – mean value 124 % (ranging from 86 % to 146 %).

On the basis of the results of these 20 trials carried out between 1994 and 1996, it is reasonable to suggest that the later the time of application, the less marked is the increase in yield. The reduced yield increase is more pronounced when OEC 2222 is used without a surfactant. The earlier the time of application, the longer is the period of crop growth without the competing effects of weeds.

**It is suggested that it is reasonable to conclude that a single application of OEC 2222 + *Frigate* (25 g + 0.2 % v/v product/ha) applied between crop GS 13 and 39, reduces the level of weed competition sufficiently to maintain or increase the final yield of winter wheat crops.**

**Table IIIA 6.1.4-2 Yield response to OEC 2222 treatment – weeds not removed**

<b>Trial</b>		<b>94-267-018</b>	<b>94-267-006</b>	<b>96-152-002</b>	<b>94-298-147</b>	<b>95-157-037</b>	<b>95-157-056</b>	<b>96-152-005</b>	<b>96-152-022</b>
Application date		13.04.94	11.04.94	16.04.96	11.04.94	06.04.95	11.04.95	20.04.96	16.04.96
Crop GS at application		13	23	23	25	25	25	25	25
Weed GS at application			14			23	15	23	24
Assessment date		06.09.94	27.08.94	02.09.96	14.08.94	14.08.95	12.08.95	07.09.96	17.08.96
Days after first application		146	138	139	125	130	123	140	123
Treatment	g as/ha								
Untreated (tonnes per hectare)	-	5.46 de	4.35 e	7.86 f	5.72 b	6.03 cd	3.62 a	4.29 ab	3.45 a
OEC 2222	10	129 bcd	130 b-e	107 def	120 a	98 cd	111 a	111 ab	-
OEC 2222	15	-	-	113 bcd	-	113 abc	122 a	-	-
OEC 2222	20	156 a	158 abc	115 bc	119 a	110 abc	118 a	119 a	-
OEC 2222	40	152 ab	161 ab	-	119 a	122 a	116 a	-	-
OEC 2222	10	-	-	125 a	-	99 cd	133 a	-	109 a
OEC 088	0.2%								
OEC 2222	15	-	-	120 ab	-	116 ab	97 a	-	-
OEC 088	0.2%								
OEC 2222	20	155 a	169 a	121 ab	-	-	-	-	-
OEC 088	0.2%								
OEC 2222	40	-	-	-	-	-	-	-	-
OEC 088	0.2%								
OEC 2222	10	-	-	-	-	-	-	-	110 a
<i>Frigate</i>	0.2%								
OEC 2222	20	-	-	-	-	-	-	-	111 a
<i>Frigate</i>	0.2%								
OEC 2222	40	-	-	-	-	-	-	-	-
<i>Frigate</i>	0.2%								
<i>Tolkan</i>	2000	-	-	-	-	-	-	-	-
<i>Tolkan + Fortrol</i>	2000 + 875	-	-	105 ef	-	-	-	-	-
<i>Cheetah R</i>	150	-	-	-	-	-	-	-	-

**Table IIIA 6.1.4-2 Continued**

<b>Trial</b>		<b>95-157-051</b>	<b>95-157-051</b>	<b>94-267-006</b>	<b>94-267-018</b>	<b>95-157-051</b>	<b>96-267-002</b>	<b>96-152-006</b>	<b>96-259-001</b>
Application date		22.03.95	03.04.95	09.05.94	13.05.94	13.04.95	11.05.96	12.05.96	25.04.96
Crop GS at application		29	30	31	31	31	31	31	31
Weed GS at application		21	23	31		25	30	13	
Assessment date		05.08.95	05.08.95	27.08.94	06.09.94	05.08.95	27.06.96	06.09.96	16.08.96
Days after first application		136	124	110	116	114	147	117	113
Treatment	g as/ha								
Untreated (tonnes per hectare)	-	7.05 a	7.05 a	4.2 e	6.02 de	7.05 a	5.05 ab	5.07 a	8.69 bcd
OEC 2222	10	114 a	98 a	133 b-e	125 cd	106 a	103 ab	-	-
OEC 2222	15	107 a	109 a	-	-	104 a	99 ab	-	-
OEC 2222	20	108 a	109 a	161 abc	138 abc	108 a	96 ab	-	-
OEC 2222	40	-	-	167 ab	139 abc	-	-	-	-
OEC 2222	10	-	-	-	-	-	110 a	97 a	112 ab
OEC 088	0.2%								
OEC 2222	15	-	-	-	-	-	100 ab	-	-
OEC 088	0.2%								
OEC 2222	20	-	-	174 a	141 abc	-	86 ab	-	-
OEC 088	0.2%								
OEC 2222	40	-	-	-	-	-	-	-	-
OEC 088	0.2%								
OEC 2222	10	-	-	-	-	-	-	103 a	114 a
<i>Frigate</i>	0.2%								
OEC 2222	20	-	-	-	-	-	-	-	-
<i>Frigate</i>	0.2%								
OEC 2222	40	-	-	-	-	-	-	106 a	117 a
<i>Frigate</i>	0.2%								
<i>Tolkan</i>	2000	-	-	-	-	-	-	-	-
<i>Tolkan + Fortrol</i>	2000 + 875	-	-	-	-	-	-	-	-
<i>Cheetah R</i>	150	-	-	-	-	-	-	-	-

**Table IIIA 6.1.4-2 Continued**

<b>Trial</b>		<b>96-12-34-272</b>	<b>95-157-061</b>	<b>96-152-010</b>	<b>95-157-051</b>	<b>96-12-34-271</b>	<b>96-12-34-273</b>	<b>95-157-051</b>
Application date		10.05.96	02.05.95	02.05.96	01.05.95	10.05.96	10.05.96	15.05.95
Crop GS at application		31	32	32	33	33	33	37
Weed GS at application		12	14		30	18	12	31
Assessment date		17.09.96	12.08.95	17.08.96	05.08.95	14.09.96	18.09.96	05.08.95
Days after first application		130	102	107	96	127	131	82
Treatment	g as/ha							
Untreated (tonnes per hectare)	-	4.75	5.27 abc	5.3 bc	7.05 a	5.56	5.93	7.05 a
OEC 2222	10	-	96 abc	112 ab	108 a	-	-	103 a
OEC 2222	15	-	89 c	-	101 a	-	-	104 a
OEC 2222	20	-	91 bc	-	99 a	-	-	95 a
OEC 2222	40	-	100 abc	-	-	-	-	-
OEC 2222	10	-	102 ab	116 ab	-	-	-	-
OEC 088	0.2%							
OEC 2222	15	-	98 abc	-	-	-	-	-
OEC 088	0.2%							
OEC 2222	20	-	-	-	-	-	-	-
OEC 088	0.2%							
OEC 2222	40	-	-	-	-	-	-	-
OEC 088	0.2%							
OEC 2222	10	112	-	111 ab	-	125	129	-
<i>Frigate</i>	0.2%							
OEC 2222	20	-	-	-	-	-	-	-
<i>Frigate</i>	0.2%							
OEC 2222	40	142	-	127 a	-	166	139	-
<i>Frigate</i>	0.2%							
<i>Tolkan</i>	2000	-	-	-	-	-	-	-
<i>Tolkan + Fortrol</i>	2000 + 875	-	-	88 c	-	-	-	-
<i>Cheetah R</i>	150	-	-	-	-	-	-	-

### III A 6.2      **Adverse effects**

#### III A 6.2.1      **Phytotoxicity to target plants (including different cultivars) or to target plant products**

Assessments for the phytotoxic effects of OEC 2222 were made in a total of 73 trials (Table III A 6.2.1-1). There were no necrotic effects or crop vigour effects in any of the trials at any time of assessment. The occurrence of chlorosis was noted in four trials, following applications made at growth stages ranging from GS 21 to GS 39. In all cases, the chlorotic effects observed were mild and were transient. A summary of those trials in which treatment related effects were observed is provided in Table III A 6.2.1-2.

Two trials were carried out to assess the potential phytotoxicity of OEC to winter wheat varieties. Some 42 varieties were assessed in one trial while 49 varieties were assessed in the second trial. There were no phytotoxic effects observed in any variety at any assessment timing.

There were no phytotoxic effects observed as a result of the addition of either adjuvant to the OEC 2222 spray mixture - OEC 088 or *Frigate*.

#### III A 6.2.2      **Adverse effects on health of target animals**

Application to winter wheat crops to control weeds is proposed. There are no intended target animals. Consequently adverse effects on the health of target animals do not occur.

#### III A 6.2.3      **Adverse effects on site of application (discoloration, corrosion, etc.)**

The occurrence of chlorosis was noted in four trials, following applications made at growth stages ranging from GS 21 to GS 39 (Tables III A 6.2.1-1 and III A 6.2.1-2). In all cases, the chlorotic effects observed were mild and were transient.

#### III A 6.2.4      **Adverse effects on beneficial and other non-target organisms**

It has been established that OEC 2222 poses only minimum risk for bees (*cf* Section 6, Ecotoxicological Studies, Point IIA 10.4.1 and 10.4.2). On the basis of testing conducted, OEC 2222 can be considered harmless to arthropods other than bees. Four species were tested – the carabid beetle, *Bembidion tetracolum*; the lycosid spider; the phytoseiid mite *Typhlodromus pyri*; and the parasitic wasp *Aphidius rhopalosiphi* (*cf* Section 6, Ecotoxicological Studies, Point IIA 10.5.1).

There were no adverse effects on beneficial and other non-target organisms observed in any of the effectiveness and phytotoxicity trials conducted.

#### III A 6.2.5      **Adverse effects on parts of plants used for propagating purposes (e.g. seeds, cuttings, runners)**

Mueler (1997) reported on a field/glasshouse experiment carried out to determine the effects of treatment with OEC 2222 on the subsequent germination and early growth of harvested grain. It was concluded that there was no effect on germination rate or on the early growth of plants.



**Table IIIA 6.2.1-1 OEC 2222 phytotoxicity trials data in summary form**

Identity of the product under test (commercial name (s), active substance (s), content, formulation type (s)) : OEC 2222 (WG containing 80 % w/w chemx)  
 Crop : Winter wheat  
 Responsible body for reporting trial (name, address, telephone number) : Chemco, 36 – 39 Plant Street, Marlborough, Wiltshire, England, +44.1345 6789112  
 Date of submission : September 1997

Test Report	Testing Unit GEP (1)	Country Region	Dates of trial and GS (2)	Cultivar F / G (3) N / A (4)	Experimental design (5) Test method (6) Replicates	Treatments					Yield	Phytotoxicity % chlorosis (11)	Remarks (12)
						Active substances (7)	Products (8)	Rate (9)					
								kg as/ha	L/ha water	Number Interval (10)			
94-267-007	Chemco, UK Yes	Mendelton, Gloucs UK	11.04 94 to 27.07.95  GS 21	Cadenza  F  N	RCB  EPP0 93 & 135					1 (11.04.94)			
						Control	-	-	-	71 DAT		0 a	Means followed by the
						Chemx Tallow amine	OEC 2222 (80% w/w WG) OEC 088 (736 g/L)	0.01 0.2 %	200	71 DAT		0 a	same letter do not significantly differ according to Duncan's MRT initiated at the 95
						Chemx Tallow amine	OEC 2222 (80% w/w WG) OEC 088 (736 g/L)	0.02 0.2 %	200	71 DAT		2 a	% confidence level

- Notes**
- (1) Indicate with a "Yes" or "No" if the principles of GEP were applied
  - (2) Dates of commencement and completion of the trial and growth stage (GS) at first and last treatment
  - (3) F = field trial, G = glasshouse trial (indicate with "F" or "G" for each trial)
  - (4) N = natural infestation, A = artificial inoculation (indicate with "N" or "A" for each trial)
  - (5) Indicate the type of experimental design used (e.g. randomized complete block), using abbreviations
  - (6) Indicate the test guideline used (e.g. Guidelines for the efficacy evaluation of pesticides - Phytotoxicity assessment, EPPO No 135 and Guidelines for the efficacy evaluation of fungicides - *Rhizoctonia solani* on potato, EPPO PP 1/32)
  - (7) Identify the standard (reference products) used with an "S" and control plots with the word "control" for each experiment
  - (8) Indicate the commercial name, the as content and the type of formulation for the test product and reference products
  - (9) Adjust the units used as appropriate, e.g. kg/tonne for seed treatments
  - (10) Indicate the total number of treatments and the interval between treatments in days (e.g. 5, 14)
  - (11) Indicate the plant part assessed in the title of the column, the damage recorded (e.g. leaves - necrosis %) or other criteria used for the assessment (e.g. defoliation %) and indicate statistical significance for each trial and treatment.
  - (12) Provide information as relevant to the particular experiment e.g. soil type, leaf or leaves assessed etc.

Table IIIA 6.2.1-1      Continued

Test Report	Testing Unit GEP (1)	Country Region	Dates of trial and GS (2)	Cultivar F / G (3) N / A (4)	Experimental design (5) Test method (6) Replicates	Treatments				Yield	Phytotoxicity % chlorosis (11)	Remarks (12)
						Active substances (7)	Products (8)	kg as/ha	Rate (9) L/ha water			
94-267-007	Chemco, UK Yes	Mendilton, Gloucesters UK	11.04.94 to 27.07.95 GS 22	Cadenza F N	RCB EPPO 93 & 135							
						Control	-	-	-	49 DAT	0	a Means followed by the
						Chemx Tallow amine	OEC 2222 (80% w/w WG) OEC 088 (736 g/L)	0.01 0.2 %	200	49 DAT	2	a same letter do not significantly differ according to Duncan's MRT initiated at the 95
						Chemx Tallow amine	OEC 2222 (80% w/w WG) OEC 088 (736 g/L)	0.02 0.2 %	200	49 DAT	5	a % confidence level

.....

Continued (to include the findings from all 73 trials)

**Table IIIA 6.2.1-2      Summary of trials in which phytotoxic effects were observed**

<b>Trial</b>		<b>94-267-007</b>	<b>94-267-007</b>	<b>94-267-007</b>	<b>96-267-004</b>	<b>96-267-003</b>	<b>94-267-007</b>	<b>95-157-068</b>
Application date		11.04.94	03.05.94	25.04.94	25.04.96	11.04.96	09.05.94	05.06.95
Crop GS at application		21	22	22	25	30	31	39
Assessment date		21.06.94	21.06.94	21.06.94	30.05.96	10.05.96	21.06.94	06.07.95
Days after first application		71	49	57	35	29	43	31
Treatment	g as/ha							
Untreated (no/m <sup>2</sup> or % cover)	-	0 a	0 a	0 a	0 b	0 a	0 a	0 b
OEC 2222	10	-	-	-	-	0 a	-	0 b
OEC 2222	15	-	-	-	-	-	-	0 b
OEC 2222	20	-	-	-	-	-	-	0 b
OEC 2222	40	-	-	-	-	-	-	1 a
OEC 2222	10	0 a	2 a	3 a	0 b	4 a	2 a	-
OEC 088	0.2%							
OEC 2222	15	-	-	-	-	-	-	-
OEC 088	0.2%							
OEC 2222	20	2 a	5 a	0 a	10 a	-	2 a	-
OEC 088	0.2%							
OEC 2222	40	-	-	-	-	-	-	-
OEC 088	0.2%							
OEC 2222	10	-	-	-	-	0 a	-	-
<i>Frigate</i>	0.2%							
OEC 2222	20	-	-	-	-	0 a	-	-
<i>Frigate</i>	0.2%							
OEC 2222	40	-	-	-	-	3 a	-	-
<i>Frigate</i>	0.2%							
<i>Tolkan + Fortrol</i>	2000 + 875	-	-	-	-	0 a	-	-
<i>Harmony M</i>	5+51	-	-	-	-	-	-	0 b
<i>Harmony M</i>	10 + 102	-	-	-	-	-	-	3 a

### III A 6.2.6      **Impact on succeeding crops**

A total of 105 trials were assessed for phytotoxic effects of OEC 2222 arising in following crops (linseed 1, spring peas 5, winter peas 1, spring barley 3, winter barley 22, winter wheat 21, winter beans 6, sugar beet 5 winter oilseed rape 10) (Table III A 6.2.6-1).

Summaries of the data for trials in which effects were observed are provided in Table III A 6.2.6-2.

No phytotoxic effects were observed in any trial where winter wheat or winter beans were grown as following crops. In other following crops, namely peas, sugar beet, winter barley and winter oilseed rape phytotoxic effects, including chlorosis, effects on stand and growth reductions, were observed in a number of cases, but were less severe than in the case of the reference product treatments.

On the basis of the data presented, it is suggested that it is reasonable to indicate that OEC 2222 is safe to subsequent winter crops of wheat or beans.

### III A 6.2.7      **Impact on other plants including adjacent crops**

Mueler (1996b) reported on a field trial carried out to simulate OEC 2222 spray drift from ground application equipment under unfavourable spraying and wind conditions and to measure spray drift effect on a sensitive crop. The sensitive crop chosen was field peas (*Pisum sativum var. arvense*). A single application of either OEC 2222 (25 g product/ha) or Ally (35 g product/ha) was applied to the crop at BBCH GS 24 using a conventional hydraulic ground sprayer driven at right angles to the wind direction. Wind speed was 15 to 20 km/h. In order to maximise the drift effect, AFX 110 03 nozzles were used. Two 'untreated' plots which were subject to spray drift were situated downwind of the treated plots and directly adjacent to them.

Approximately one month after application, the plots sprayed with both treatments displayed clear symptoms of phytotoxicity, there was a bio-volume reduction of around 80 % and plants exhibited severe chlorosis.

The SDD (first distance at which no symptoms of damage were found) for the OEC 2222 treatment was 4 to 5 m from the edge of the treated area. The symptoms observed within this distance were similar to those in the treated area, however, damage was less pronounced and plants further away recovered from injury. No lethal effects were observed in the area damaged by spray drift.

It was concluded that crop damage associated with OEC 2222 spray drift does not exceed that associated with spray drift from conventional herbicides.

### III A 6.3      **Economics**

..... (in the interest of brevity,  
the remainder of the text, is omitted)

- 
- 
- 
- 
-

**Table IIIA 6.2.6-1 Trials assessed for phytotoxic effects in succeeding crops**

Following crop								
Linseed	Spring peas	Winter peas	Winter barley	Winter wheat	Winter oilseed rape	Spring barley	Sugar beet	Winter beans
94-267-004	94-298-146	95-267-052	94-298-148	94-267-008	95-157-073	94-267-005	94-298-146	94-267-010
	94-298-148		96-152-004	94-267-009	95-157-051	94-267-006	94-298-147	94-387-120
	94-298-147		94-298-146	94-387-121	94-298-146	95-157-065	94-298-148	95-157-056
	94-267-003		94-298-147	94-298-148	94-298-147		95-157-045	95-267-051
	95-267-050		94-267-009	95-157-061	94-298-148		95-157-059	95-157-046
			94-267-018	95-157-038	95-157-073		96-152-040	95-157-036
			94-267-015	95-157-047	95-157-074		96-152-041	
			94-267-017	95-157-057	96-152-005		96-152-042	
			94-387-122	95-157-062	96-152-009		96-152-043	
			94-267-007	95-157-075	96-152-022			
			95-157-052	95-157-076				
			95-157-054	95-267-053				
			95-157-055	95-157-049				
			95-267-054	95-157-050				
			95-157-069	95-157-063				
			95-157-071	95-157-064				
			96-157-007	96-267-002				
			96-157-008	96-152-010				
			96-157-012	96-267-003				
			96-157-001	96-152-006				
	96-164-002	96-267-001						

**Table IIIA 6.2.6-2 Phytotoxicity observed in succeeding crops - summary**

<b>Trial</b>		<b>94-298-146</b>	<b>94-298-148</b>	<b>94-298-146</b>	<b>94-298-148</b>	<b>94-298-147</b>	<b>94-298-148</b>	<b>94-298-147</b>	<b>96-152-004</b>
Last application date		11.04.94	11.04.94 & 23.03.95	11.04.94	11.04.94 & 23.03.95	11.04.94	11.04.94 & 23.03.95	11.04.94	01.05.96
Following crop		peas (spring)	peas (spring)	Sugar beet	sugar beet	sugar beet	Winter barley	winter barley	winter barley
Assessment date		09.08.95	04.06.96	09.08.95	04.06.96		24.10.95	02.12.94	22.11.96
Assessed symptoms		Growth reduction	Growth reduction	Growth reduction	Growth reduction	Stand reduction	Chlorosis	Chlorosis	Chlorosis
Days after first application		6 MAT	2 YAT1	1 8 MAT1	2 YAT1	1 YAT	18 MAT1	6 MAT1	6 MAT1
Treatment	g as/ha		1 YAT2		1 YAT2		6 MAT2		
Untreated (no/m <sup>2</sup> or % cover)	-	0	0	0	0	0	0	0	0
OE 2222	10	0	2	0	1	20	0	0	-
OE 2222	15	-	-	-	-	-	-	-	-
OE 2222	20	0	1	0	5	11	0	1	-
OE 2222	40	1	0	10	13	5	1	6	-
OE 2222	10	-	-	-	-	-	-	-	3
OE 088	0.2%								
OE 2222	15	-	-	-	-	-	-	-	-
OE 088	0.2%								
OE 2222	20	-	-	-	-	-	-	-	6
OE 088	0.2%								
OE 2222	40	-	-	-	-	-	-	-	10
OE 088	0.2%								
<i>Lo-gran 20 WG</i>	20	0	0	3	11	18	0	3	0
<i>Lo-gran 20 WG</i>	40	0	0	10	3	23	0	2	-
<i>Harmony M</i>	5+51	-	-	-	-	-	-	-	-
<i>Harmony M</i>	10 + 102	-	-	-	-	-	-	-	-

Key: Assessments are timed as months after treatment (MAT) or years after treatment (YAT)

Continued

IIIA 6.4      **Consideration of Benefits**

IIIA 6.4.1      **Survey of alternative pest control measures (chemical and non-chemical)**

..... (in the interest of brevity,  
the remainder of the text, is omitted)

- 
- 
- 
- 
- 
- 
- 
- 

IIIA 6.4.2      **Compatibility with current management practices including IPM**

..... (in the interest of brevity,  
the remainder of the text, is omitted)

- 
- 
- 
- 
- 
- 
- 

IIIA 6.4.3      **Contribution to risk reduction**

..... (in the interest of brevity,  
the remainder of the text, is omitted)

- 
- 
- 
- 
- 

IIIA 6.4.4      **Information on the possible occurrence of the development of resistance  
or cross-resistance**

Although there is some evidence of resistance to sulfonylureas in situations of repeated use, particularly in the case of chickweed, it is not considered likely that resistance to OEC 2222 will develop, since only one application of the product per season is proposed. Should resistant populations arise, control could be achieved through use of alternative products.

### IIIA 6.5      **Other/special studies**

No other or special studies were conducted.

### IIIA 6.6      **Summary and evaluation of data presented**

Data to support the proposed label claims for use of OEC 2222 + OEC 088 or *Frigate* (25g + 0.2% v/v product/ha) for the suppression or control of scutch (couch) and brome grasses, cleavers and other broad-leaved weeds in winter wheat were generated in some 104 trials, conducted in Ireland, Belgium and the UK between the years 1994 and 1997. All studies were carried out in crops of winter wheat in areas typical of those where the crop is grown commercially.

There are currently no products authorized for the control of scutch grass in an 'in-crop' situation. Furthermore, no products currently authorized provide adequate control of sterile brome in cereals. OEC 2222 suppresses or controls these particularly troublesome weeds in crops of winter wheat and thus, will fill an important niche in the weed control market.

The data relating to control of scutch were generated in 32 trials conducted in the UK and Ireland in the period 1994 to 1996. Trials were carried out over a range of infestation levels and a range of weed growth stages. The level of control of scutch achieved using OEC 2222 + OEC 088 (25g + 0.2% v/v product/ha) was sufficiently high to be considered commercially acceptable. Mean levels of control achieved were 80 %, 73 % and 84 %, respectively, when applied pre-tillering (GS 12 to 19), during tillering (GS 21 to 29) or from pseudo-stem erect to second node detectable (GS 30 to 32).

Data relating to control of sterile brome were generated in 19 trials conducted in the UK between 1994 and 1997. Sterile brome was found to be consistently susceptible to OEC 2222 up to growth stage 41. It was apparent, however, that optimum effectiveness was achieved when the product was used at earlier growth stages, up to GS 32.

In trials carried out with scutch and sterile brome the level of effectiveness achieved with the addition of an adjuvant, either OEC 088 or *Frigate* was compared, at equivalent rates of application of chemx. It was found in all cases that the level of weed control achieved using a single application of OEC 2222 + *Frigate* was similar to and not significantly lower than that achieved with a single application of OEC 2222 + OEC 088 at equivalent rates of application of chemx. It was therefore concluded that a single application of OEC 2222 + *Frigate* provides the same level of efficacy as a single application of OEC 2222 + OEC 088.

Data relating to the control of meadow brome, cleavers, chickweed and mayweed were generated in some 58 trials conducted in the UK, Ireland and Belgium in the period 1994 to 1997. All weed species were found to be consistently susceptible to OEC 2222 when applied at the recommended growth stages.

OEC 2222 at a rate of application of 12.5 g product/ha occasionally resulted in similar level of efficacy to that achieved with an application rate of 25 g product/ha. However, greater consistency was achieved using OEC 2222 at the 25 g product/ha application rate. It is therefore suggested that optimal effectiveness of OEC 2222 will be achieved using 25 g product/ha, with the addition of 0.2% v/v of a recommended adjuvant.

It was concluded that as a single application of OEC 2222 + OEC 088 (25g + 0.2% v/v product/ha) provides control of meadow brome, cleavers, mayweed and chickweed. Similarly, a single application of OEC 2222 + *Frigate* (25g + 0.2% v/v product/ha) provides control of meadow brome, cleavers, mayweed and chickweed.



Chemco      September 1997      chemx (proposed ISO name)      page of

---

A total of 73 trials were conducted and assessed for phytotoxic effects arising from application of OEC 2222. Generally, there were no significant phytotoxic effects on the growth of the crop or on the yield. It was concluded that OEC 22222 application to winter wheat is safe.

Two trials were conducted to determine the influence of climatic and growth factors on the efficacy of OEC 2222. It was concluded that the product should be sprayed under good growing conditions. In particular it was concluded that plants should not under drought stress at time of application, air temperature should be sufficiently high to encourage growth and application should be delayed until there is sufficient weed foliage.

The recommended method for the cleaning of spray equipment has been shown to be satisfactory for conventional field sprayers.

In following crops of winter wheat or winter beans no phytotoxic effects were observed in any trial. It therefore is reasonable to assume that OEC 2222 is safe to subsequent winter crops of wheat or beans.

---

