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PRACTICAL SECTION FOR GROWERS

Scope and Objectives

The purpose of the first year of this experiment was to screen a range of eight contact materials applied as a single application of half rates or less as individual materials and mixtures on four annual umbelliferous herbs. The herbicide selection included four materials which currently have no form of approval for use on annual herbs.

Thirty two herbicide treatments plus controls were applied to curled and flat leaf parsley, coriander and dill at the 1½ - 2½ true leaf stage to test safety and weed control efficacy.

As the objective was to study the performance of contact, foliar active materials no pre-emergence residual herbicide was applied to the site.

Summary of Results

No treatment stood out as being fully safe and effective. Generally the safe treatments were not effective against the large weeds present and conversely the effective treatments caused crop damage to start with but recovery followed in some cases

The most promising treatments for all four herb types were mixtures of Afalon + Gesagard (Trt 13) and Afalon + Atlas Brown (Trt 6). Gesagard + Dosaflo (Trt 20) showed potential for coriander only.

Action Points for Growers

It must be emphasised that this report covers one years results only of a non replicated screen of herbicide treatments. Two mixtures, Afalon + Gesagard (Trt 13) and Afalon + Atlas Brown (Trt 6) appear to have potential for use in annual umbelliferous herbs.

Practical and Financial Benefits.

None can be noted at this early stage of the work.

SCIENCE SECTION

Introduction

Control of annual weeds in herbs relies heavily on herbicides with a residual mode of action. Several materials are available for use, mainly under the Off-label arrangements. The reliability of pre-emergence herbicides can be reduced by adverse field conditions and all have a limited field life. Applications of post-emergence contact (foliar acting) materials are usually needed in order to extend weed control through to crop harvest.

Currently few foliar acting herbicides may be used on annual umbelliferous herbs, mainly under the Off-label scheme. Little information is available on their safety when applied at different crop stages as single materials, even less when applied as tank mixes.

Information on efficacy of weed control is available from commercial literature usually as standard doses and there appears to be little data on the effect of reduced rate applications to small weeds either as single or repeat doses of individual materials or mixtures.

The purpose of the first year of this experiment was to screen a range of eight contact materials applied as a single application of half rates or less as individual materials and mixtures. The herbicide selection included four materials which currently have no form of approval for use on annual herbs. Application was made to curled and flat leaf parsley, coriander and dill.

Materials and Method

Herbicides and rates (as commercial product per hectare).

Atlas Brown	chlorpropham/pentachlor	3.0l
Afalon	linuron	0.6l
Gesagard 50WP	prometryn	1.1kg
Sovereign 400SC	pendimethalin	1.0l
*Dosaflo	metoxuron	1.5l
*Totril	ioxynil	0.5l
*Basagran	bentazone	0.5l
*Sencorex WG	metribuzin	2.0l

*signifies material not currently approved for use on annual herbs.

Treatment combinations:-

- 1 Untreated control.
- 2 Dosaflo alone.
- 3 Totril alone.
- 4 Basagran alone.
- 5 Sencorex WG alone.
- 6-12 Atlas Brown plus Afalon, Gesagard 50WP, Sovereign 4000SC, Dosaflo, Totril, Basagran, and Sencorex WG.
- 13-18 Afalon plus Gesagard 50WP, Sovereign 4000SC, Dosaflo, Totril, Basagran, and Sencorex WG.
- 19-23. Gesagard plus Sovereign, Dosaflo, Totril, Basagran, and Sencorex WG.
- 24-27 Sovereign 4000SC plus Dosaflo, Totril, Basagran, and Sencorex WG.
- 28-30 Dosaflo plus Totril, Basagran, and Sencorex WG.
- 31-32 Totril plus Basagran, and Sencorex WG.
- 33 Basagran plus Sencorex WG.
- 34-35 Untreated controls.

Trial design and layout

The plots layout consisted of 6 adjacent beds, replicated twice, with spray treatments applied transversely across the beds. Two beds of each parsley type were sown on the first drilling date (24 April), two beds of dill at each of two dates, (2 May & 6 May), and two beds of coriander, also at each of two dates, (4 May & 9 May). No randomisation was carried out between the replicates.

Two main assessments were made, the first on 2 July 1997, (15 days after treatment [DAT]), the second on 5 August 1997, (49 DAT). Coriander heights were recorded separately on 17 July 1997, (30 DAT).

Crop vigour on a 0-9 scale.

Weed species present.

Weed control efficacy and weed competition index on a 0-9 scale.

Weed species fully controlled.

Site

Lighthorne Herbs Ltd, Grove Farm, Warmington, Nr Banbury, OXON.

Soil type:- Banbury series fine sandy loam.

In order to ensure that at least one bed of each species was at the chosen stage of 1½ true leaves at spraying, the parsleys were sown once and the dill and coriander twice on the dates listed below.

Four crop rows were drilled in each 64" bed using natural undressed seed spaced 1.5cm apart. No residual herbicide was applied to the trial area.

Crop Diary

The site was autumn ploughed and two passes of the power harrow were made in spring 1997. No irrigation was used on the site. A base dressing of 400kg of a 7:5:12 compound fertilizer was applied before drilling, and a top dressing of 150kg of a 26:0:0 applied after germination.

Drilling dates:-

24 April.	Parsley.	
2 May.	Dill (first sowing).	Rolled.
4 May.	Coriander (first sowing).	Rolled.
6 May.	Dill (second sowing).	Rolled.
9 May.	Coriander (second sowing).	

Crop progress.

15 May.	Both parsleys emerged. Dill chitting.
14 June.	Parsley ½ true leaf, (tl) Dill (first sowing), 1½ - 2½ tl. Coriander (first sowing), 1 - 1¼ tl. Dill (second sowing), 1 tl. Very thin stand. Coriander (second sowing), 1 tl.
17 June.	Parsley 2 - 2½ tl. Dill (first sowing), 2 - 4 tl. Coriander (first sowing), 3 - 4 tl. Dill (second sowing), 3 - 5 tl. Coriander (second sowing), 2½ - 5 tl.

Treatment dates:-

16 June.	Plots marked out
17 June.	Treatments were applied in fine, warm, dry and still conditions to a moist soil surface.

Weed species present.

Eleven species of weeds were recorded on 17 June prior to spraying.

The following six were present in significant numbers at the sizes shown:-

Groundsel	3-4"	<i>Senecio vulgaris</i>
Mayweed	5"	<i>Matricaria perforata or Chamomilla recutita</i>
Field pansy	2-3"	<i>Viola arvensis</i>
Chickweed	4"	<i>Sterraria media</i>
Annual meadowgrass	1-2"	<i>Poa annua</i>
Fool's parsley	4 true leaf	<i>Aethusa cynapium</i>

The following five species were also present:-

Speedwell.	<i>Veronica persica</i>
Forget me not.	<i>Myosotis arvensis</i>
Redshank.	<i>Polygonum persicaria</i>
Fat hen.	<i>Chenopodium album</i>
Common fumitory.	<i>Fumaria officinalis</i>

Assessments

Assessment dates:-

2 July 1997.	First crop and weed control scores.
5 August 1997.	Second crop and weed control scores.
2 July 1997.	Control of individual weed species.
17 July 1997.	Coriander height recording.

Crop score on a 0-9 scale assessed crop reaction to treatments as expressed by growth and development, particularly leaf number and size, and visible leaf condition.

Weed control efficacy score on a 0-9 scale covering both weed numbers and size, and giving an index of the competitive effect of the weeds present.

List of weed species controlled by treatment. Scored 0-4

(0 = weed absent, 1 = no effect, 2 & 3 = intermediate control, 4 = total control)

Rainfall data from the Oxfordshire area was recorded as follows:-

20-27 April	19mm	
6 May	9mm	
8 May	8mm	
11 May	11mm	
14 May	7.5mm	
17 May	16mm	(Parsley emergence).
21 May	7mm	
6 June	15mm	
15 June	4mm	
17 June.	Treatments applied in warm sunny conditions during late morning.	
19 June	6mm	
24 June	11mm	

Results

TABLE I: Weed Control Efficacy Score

Treatment No		Weed control efficacy score 0-9 15 DAT	Weed control efficacy score 49 DAT	Treatment No		Weed control efficacy score 0-9 15 DAT	Weed control efficacy score 49 DAT
1	Control	0	0	19	Gesagard 50WP + Sovereign 4000SC	4	3
2	Dosaflo	3	2	20	Gesagard + Dosaflo	7	6
3	Totril	3	2	21	Gesagard 50WP+Totril	7	6
4	Basagran	3	3	22	Gesagard 50WP + Basagran	7	5
5	Sencorex WG	8	9	23	Gesagard 50WP +Sencorex WG	9	9
6	Atlas Brown + Afalon	6	6	24	Sovereign 4000SC +Dosaflo	3	2
7	Atlas Brown + Gesagard 50WP	5	5	25	Sovereign 4000SC +Totril	3	1
8	Atlas Brown + Sovereign 4000SC	3	2	26	Sovereign 4000SC +Basagran	4	5
9	Atlas Brown + Dosaflo	7	4	27	Sovereign 4000SC +Sencorex WG	8	9
10	Atlas Brown + Totril	5	4	28	Dosaflo +Totril	8	7
11	Atlas Brown + Basagran	5	5	29	Dosaflo +Basagran	5	5
12	Atlas Brown + Sencorex WG	9	9	30	Dosaflo + Sencorex WG	8	9
13	Afalon + Gesagard 50WP	7	7	31	Totril + Basagran	6	4
14	Afalon + Sovereign 4000SC	5	4	32	Totril + Sencorex WG	9	9
15	Afalon + Dosaflo	6	6	33	Basagran + Sencorex WG	9	9
16	Afalon + Totril	7	6	34	Control	0	0
17	Afalon + Basagran	6	4	35	Control	0	0
18	Afalon + Sencorex WG	8	9				

0 = no control, 9 = total control.

As shown in Table I above, all treatments that included Sencorex alone or in mixtures gave a total wipe out of weeds and crop. There was no sign of either crop or weeds when the site was cleared 57 days after treatment. At the rate used this material is likely to cause serious crop loss.

Based on an efficacy score of 7 as the threshold at the first assessment the best treatments were:-

9	Atlas Brown + Dosaflo	Good initially but weeds recovered.
13	Afalon + Gesagard 50WP	Equally effective and more persistent.
16	Afalon + Totril	Equally effective and more persistent.
20	Gesagard 50WP + Dosaflo	Equally effective and more persistent.
21	Gesagard 50WP + Totril	Equally effective and more persistent.
22	Gesagard 50WP + Basagran	Good initially but weeds recovered.
28	Dosaflo + Totril	Very effective and persistent.

TABLE II: WEED SPECIES KILLED OR NEARLY KILLED. 2 JULY (15 DAT)

Treatment No	groundsel	mayweed	chickweed	field pansy	annual meadow grass	speedwell	fools parsley	Forget me not	redshank	fathen	Common fumitory	No of spp fully controlled
1 Control												0
2 Dosaflo			*		*							0
3 Totril			*									0
4 Basagran		S	*				*				*	1
5 Sencorex WG	S	S	S	*	S	S	S	S	S	S	*	9
6 Atlas Brown + Afalon		*	S	S	*			S				3
7 Atlas Brown + Gesagard 50WP		*	*		*							0
8 Atlas Brown + Sovereign 4000SC			*		*							0
9 Atlas Brown + Dosaflo		*	S		*							1
10 Atlas Brown + Totril		*	*									0
11 Atlas Brown + Basagran		S	*					*		S		2
12 Atlas Brown + Sencorex WG	S	S	S	S	S	S	S	S	S	S	*	10
13 Afalon + Gesagard 50WP		S	S	S	*							3
14 Afalon + Sovereign 4000SC			S	S				*		S		3
15 Afalon + Dosaflo	*	*	S	S	*							2
16 Afalon + Totril	*	*	S	S	*						*	2
17 Afalon + Basagran		S	S	S	*			S			*	4
18 Afalon + Sencorex WG	S	S	S	S	S	S	S	S	S		*	9
19 Gesagard 50WP+ Sovereign 4000SC		*	*	*	*							0
20 Gesagard 50WP + Dosaflo		*	S		S							2

21	Gesagard 50WP + Totril	*	*	S	*	*			*		*	1	
22	Gesagard 50WP + Basagran	*	S	S		*						2	
23	Gesagard 50WP + Sencorex WG	S	S	S	S	S	S	S	S	S	S	*	10
24	Sovereign 4000SC + Dosafo			*					*				0
25	Sovereign + Totril								*		*	*	0
26	Sovereign 4000SC + Basagran		S	*									1
27	Sovereign 4000SC + Sencorex WG	S	S	S	S	S	S	S	S	S	S	*	10
28	Dosafo + Totril	*	S	*	S	*			*			*	2
29	Dosafo + Basagran		S	S									3
30	Dosafo + Sencorex WG	*	S	S	S	S	S	S	S	S	S	*	9
31	Totril + Basagran	*	S	S									2
32	Totril + Sencorex WG	S	S	S	S	S	S	S	S	S	S	*	10
33	Basagran + Sencorex WG	S	S	S	S	S	S	S	S	S	S	*	10
34	Control												0
35	Control												0

S = Total control.

* = Severe check but some weed survival.

Table II shows that Sencorex 50WG and all its mixtures totally controlled virtually all the weed species present and no regrowth occurred. All other treatments controlled only a small number of weed species.

TABLE III: CROP SAFETY SCORES PARSLEY

Treatment No	Flat leaf parsley first assessment, 15 DAT	Flat leaf parsley second assessment, 49 DAT	Curled leaf parsley first assessment, 15 DAT	Curled leaf parsley second assessment, 49 DAT	Weed control efficacy score 0-9 15 DAT	Weed control efficacy score 0-9 49 DAT
1	Control	9	-	9	0	0
2	Dosaflo	2.5	3	1	3	2
3	Totril	1	1	1	3	2
4	Basagran	2	3	0	3	3
5	Sencorex WG	0	0	0	8	9
6	Atlas Brown + Afalon	6.5	8	6	6	6
7	Atlas Brown + Gesagard 50WP	4.5	7	4	5	5
8	Atlas Brown + Sovereign 4000SC	8	7	7	6	3
9	Atlas Brown + Dosaflo	2	4	1	2	7
10	Atlas Brown + Totril	1	2	1	1	5
11	Atlas Brown + Basagran	2	3	1	1	5
12	Atlas Brown + Sencorex WG	0	0	0	0	9
13	Afalon + Gesagard 50WP	5	7	4.5	7	7
14	Afalon + Sovereign 4000SC	6.5	8	5.5	7	5
15	Afalon + Dosaflo	2	2	1	1	6
16	Afalon + Totril	2	3	1	3	7
17	Afalon + Basagran	2	4	0.5	1	6
18	Afalon + Sencorex WG	0	0	0	0	8
19	Gesagard 50WP + Sovereign 4000SC	7	8	6.5	7	4
20	Gesagard 50WP + Dosaflo	3	4	1.5	2	7
21	Gesagard 50WP + Totril	2	3	1.5	3	7
22	Gesagard 50WP + Basagran	2	6	0	0	7
23	Gesagard 50WP + Sencorex WG	0	0	0	0	9
24	Sovereign 4000SC + Dosaflo	2	3	1	1	3
25	Sovereign 4000SC + Totril	2	1	2	1	3
26	Sovereign 4000SC + Basagran	3	5	1	0	4

27	Sovereign 400SC +Sencorex WG	0	0	0	0	8	9
28	Dosaflo +Totril	0	0	0	0	8	7
29	Dosaflo +Basagran	1	0	0	0	5	5
30	Dosaflo +Sencorex WG	0	0	0	0	8	9
31	Totril +Basagran	0.5	0	0	0	6	4
32	Totril +Sencorex WG	0	0	0	0	9	9
33	Basagran + Sencorex WG	0	0	0	0	9	9
34	Control	9	-	9	-	0	0
35	Control	9	-	9	-	0	0

Table III shows the crop safety and weed control scores for both the flat leaf parsley (FLP) and the curled leaf parsley (CLP).

The following six treatments were reasonably safe and worth noting:-

- | | |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------|
| 6. Atlas Brown + Afolon | initially checked the crop but recovery occurred by the second assessment, five weeks later. |
| 7. Atlas Brown + Gesagard 50WP | caused greater initial check than 6 but again the crop recovered. |
| 8. Atlas Brown + Sovereign 4000SC | showed slight checking effect but no recovery occurred. Flat leaf parsley appeared to be less effected |
| 13. Afolon + Gesagard 50WP | also caused early check to crop growth but recovery was good with both species |
| 14. Afolon + Sovereign 4000SC | also caused early check to crop growth but recovery was good with both species |
| 19. Gesagard 50WP + Sovereign 4000SC | slight check after spraying but good crop recovery took place. |

Based on a weed control efficacy threshold of 7 only Treatment 13, **Afolon + Gesagard 50WP**, demonstrated reasonable safety and efficacy. Treatment 6, **Atlas Brown + Afolon**, was only slightly less effective.

TABLE IV: CROP SAFETY SCORES - DILL

Treatment No	Dill first sowing, first assessment, 15 DAT	Dill second assessment, 49 DAT	Dill second sowing, first assessment, 15 DAT	Dill second sowing, second assessment, 49 DAT	Weed control efficacy score 0-9 15 DAT	Weed control efficacy score 0-9 49 DAT
1	Control	9	-	9	-	0
2	Dosaflo	2.5	3	1	3	2
3	Totril	5.5	8	3	7	2
4	Basagran	6	4	3	3	3
5	Sencorex WG	0	0	0	0	8
6	Atlas Brown + Afalon	2	3	1	4	6
7	Atlas Brown +Gesagard 50WP	3	7	2.5	7	5
8	Atlas Brown +Sovereign 4000SC	7	7	6	7	3
9	Atlas Brown + Dosaflo	1.5	1	0.5	2	7
10	Atlas Brown + Totril	1	3	0.5	2	5
11	Atlas Brown + Basagran	1	1	0	1	5
12	Atlas Brown + Sencorex WG	0	0	0	0	9
13	Afalon + Gesagard 50WP	2	7	1	5	7
14	Afalon + Sovereign 4000SC	4.5	7	2.5	5	5
15	Afalon + Dosaflo	0.5	1	0.5	1	6
16	Afalon + Totril	1	2	0	1	7
17	Afalon + Basagran	0	1	0	1	6
18	Afalon + Sencorex WG	0	0	0	0	8
19	Gesagard 50WP + Sovereign 4000SC	6.5	8	5.5	8	4
20	Gesagard 50WP + Dosaflo	2.5	6	1	7	7
21	Gesagard 50WP + Totril	3.5	7	2	6	7
22	Gesagard 50WP + Basagran	1	2	1.5	3	7
23	Gesagard 50WP + Sencorex WG	0	0	0	0	9
24	Sovereign 4000SC + Dosaflo	2	2	1.5	2	3
25	Sovereign 4000SC + Totril	5.5	7	4	5	3
26	Sovereign 4000SC + Basagran	1.5	6	1.5	7	4
27	Sovereign 4000SC + Sencorex WG	0	0	0	0	8
28	Dosaflo + Totril	0.5	0	0.5	1	8
29	Dosaflo + Basagran	0	1	0	1	5
30	Dosaflo + Sencorex WG	0	0	0	0	8
31	Totril + Basagran	0.5	2	0.5	1	6
32	Totril + Sencorex WG	0	0	0	0	9
33	Basagran + Sencorex WG	0	0	0	0	9

34	Control	9	-	9	-	0	0
35	Control	8.5	-	9	-	0	0

Table IV presents safety and efficacy data for dill. In general this crop appeared much more sensitive to the treatments initially but good recovery occurred in ten cases of which only three achieved reasonable weed control. These were:-

13. Afalon + Gesagard 50WP.
20. Gesagard 50WP+ Dosaflo.
21. Gesagard 50WP+ Totril.

All three caused a severe check initially but the good recovery noted above followed in all three.

Although ten treatments were reasonably safe with scores of 7 or above at the second assessment, most caused considerable damage initially. Treatments 8, **Atlas Brown + Sovereign 4000SC**, and 19, **Gesagard 50WP + Sovereign 4000SC**, were less damaging at the first assessment but neither gave acceptable weed control.

TABLE V: CROP SAFETY SCORES - CORIANDER

Treatment No	Coriander first sowing, first assessment, 15 DAT	Coriander first sowing, second assessment, 49 DAT	Coriander second sowing, first assessment, 15 DAT	Coriander second sowing, second assessment, 49 DAT	Weed control efficacy score 0-9, 15 DAT	Weed control efficacy score 0-9, 49 DAT	Mean Height Cm 30 DAT
1 Control	9	-	9	-	0	0	61.3
2 Dosaflo	3.5	4	3.5	5	3	2	32.3
3 Totril	4	6	4	6	3	2	40.3
4 Basagran	2	4	3	4	3	3	29.8
5 Sencorex WG	0	0	0	0	8	9	
6 Atlas Brown +Afalon	6	8	6.5	7	6	6	52.8
7 Atlas Brown +Gesagard 50WP	5.5	7	6.5	7	5	5	40
8 Atlas Brown +Sovereign 4000SC	7	8	7.5	7	3	2	59
9 Atlas Brown +Dosaflo	2	4	1.5	4	7	4	31.5
10 Atlas Brown +Totril	4	6	4	7	5	4	36.5
11 Atlas Brown +Basagran	1.5	5	2	5	5	5	20.5
12 Atlas Brown +Sencorex WG	0	0	0	0	9	9	
13 Afalon +Gesagard 50WP	7.5	9	8	8	7	7	45.5
14 Afalon +Sovereign 4000SC	6.5	8	7	7	5	4	53.8
15 Afalon +Dosaflo	3.5	6	4	7	6	6	28.3
16 Afalon +Totril	4	6	4.5	5	7	6	37
17 Afalon +Basagran	1	5	1.5	5	6	4	25.8
18 Afalon +Sencorex WG	0	0	0	0	8	9	
19 Gesagard 50WP + Sovereign 4000SC	5.5	7	6.5	7	4	3	54.5
20 Gesagard 50WP + Dosaflo	3.5	8	4	7	7	6	28
21 Gesagard 50WP + Totril	4	6	3.5	6	7	6	33.3
22 Gesagard 50WP +	1	4	2	6	7	5	23

23	Basagran Gesagard 50WP + Sencorex WG	0	0	0	0	9	9	
24	Sovereign 4000SC + Dosafo	3	5	3.5	7	3	2	28
25	Sovereign 4000SC + Totril	6.5	7	6.5	8	3	1	48.3
26	Sovereign 4000SC + Basagran	2.5	7	3.5	7	4	5	28.8
27	Sovereign 4000SC + Sencorex WG	0	0	0	0	8	9	
28	Dosafo + Totril	1	1	1	3	8	7	15.5
29	Dosafo + Basagran	1.5	2	1.5	4	5	5	12
30	Dosafo + Sencorex WG	0	0	0	0	8	9	
31	Totril + Basagran	0.5	1	1	3	6	4	12
32	Totril + Sencorex WG	0	0	0	0	9	9	
33	Basagran + Sencorex WG	0	0	0	0	9	9	
34	Control	9	-	9	-	0	0	63.3
35	Control	9	-	9	-	0	0	62.5

Table V shows the crop safety, weed control and crop height data for coriander.

Five treatments gave reasonable crop safety scores at the first assessment and recovered well to a score of 8 by the second assessment.

6. **Atlas Brown +Afalon**
7. **Atlas Brown + Sovereign 4000SC**
8. **Afalon + Gesagard 50WP**
14. **Afalon +Sovereign 4000SC**
25. **Sovereign 4000SC+Totril**

However, of these, 8, 14 and 25 gave poor weed control. Once again 13, Afalon + Gesagard 50WP gave the best overall result.

Treatment 20, **Gesagard 50WP + Dosaflo**, caused a severe check at the first assessment but the crop again recovered well.

Although treatment 6, **Atlas Brown + Afalon**, caused a moderate initial check, crop recovery took place. Efficacy of weed control was slightly lower than treatment 13, **Afalon + Gesagard**.

Records of crop height were taken on 17 July 1997, four weeks after spraying, by which time all the plants had bolted. There was a direct relationship between crop damage at the first assessment 14 days after spraying, and crop height four weeks after spraying.

Discussion.

As the purpose of this trial was to screen a large number of contact herbicide mixtures, no residual pre-emergence treatment was applied to the trial site. This allowed the contact properties of the treatments to be studied on a full range of weed species

Although rainfall was more than adequate following drilling, crop emergence and early growth was slow. Some eight weeks elapsed between drilling and the 1½ - 2½ true leaf stage that had been selected for application of the treatments. By this time several weed species were well developed, up to 5" spread in some cases, and beyond the stage at which full control could be anticipated from a single application of the various herbicide mixtures.

Curled leaf parsley seemed to be the most sensitive to the herbicides tested with coriander being most tolerant. Dill was sensitive initially but appeared to have greater powers of recovery than parsley.

Contact herbicides currently not approved for annual herbs were included in the treatments. It was decided to test half standard rates in most cases but one or two were included at lower rates where use in commerce suggested that this was appropriate.

Sencorex WG gave total control of both crop and weeds and even eight weeks after spraying no crop or weeds could be detected. The selected rate was obviously much too high and the potential of this material for weed control in these crops remains unknown.

Mixtures containing Totril were of variable efficacy but generally damaging and seem to have little use in umbelliferous herbs. The same may be said for Basagran and its mixtures.

Dosaflo and its mixtures were also damaging in most cases but there is a possible case for further investigation of the Gesagard 50WP + Dosaflo mixture in coriander.

In general, mixtures containing Sovereign 4000SC were ineffective and not thought worth pursuing further.

Conclusions

Based on this first year screening trial the use of a single application of a reduced rate contact herbicide mixture in the absence of a pre-emergence residual treatment is unlikely to achieve commercially acceptable weed control. Although rainfall was adequate after drilling, eight weeks elapsed before the crops reached the required stage for spraying.

Generally the safe treatments were not effective against the large weeds present and conversely the effective treatments were not safe and caused crop damage to start with though recovery followed in some cases.

The most promising treatments for all three herb species were mixtures of:-

Afalon + Gesagard 50WP

Afalon + Atlas Brown

For coriander only, Gesagard 50WP + Dosaflo showed some potential but was too damaging to the other species.

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