MICHELIN: ETHREL SPRAY TREATMENTS AND PROCESSING

Treatment	Spray date	days to	Harvest	days to	Mill and press	Condition at processing
Hand pick 1	-	-	31/8	10	10/9	Green,immature
Hand pick 2	-	-	14/9	7	21/9	Good, immature
Hand pick 3	-	-	28/9	31	29/10	Good, mature
Ethrel 240ppm 1	28/8	23	20/9	4	24/9	Good
Ethrel 480ppm 1	28/8	23	20/9	4	24/9	Good
Ethrel 240ppm 2	11/9	29	10/10	5	15/10	Good, mature
Ethrel 480ppm 2	11/9	29	10/10	5	15/10	Good, mature
Ethrel 240ppm 3	28/9	12	10/10	5	15/10	Good, just mature
Ethrel 480ppm 3	28/9	12	10/10	5	15/10	Good, just mature
Control	-	-	5/11	1	6/11	Good, just mature

DABINETT: ETHREL SPRAY TREATMENTS AND PROCESSING

Treatment	Spray date	days to	Harvest	days to	Mill and press	Condition at processing
Hand pick 1	-	-	31/8	10	10/9	Immature
Hand pick 2	-	-	14/9	7	21/9	Good
Hand pick 3	-	-	28/9	39	6/11	Good, just mature
Ethrel 240ppm 1	28/8	51	18/10	19	6/11	Good, just mature
Ethrel 480ppm 1	28/8	51	18/10	19	6/11	Good, just mature
Ethrel 240ppm 2	11/9	37	18/10	19	6/11	Good, just mature
Ethrel 480ppm 2	11/9	37	18/10	19	6/11	Good, just mature
Ethrel 240ppm 3	28/9	20	18/10	19	6/11	Good, just mature
Ethrel 480ppm 3	28/9	20	18/10	19	6/11	Good, just mature
Control	-	-	12/11	8	20/11	Good

TREMLETTS: ETHREL SPRAY TREATMENTS AND PROCESSING

Treatment	Spray date	days to	Harvest	days to	Mill and press	Condition at processing
Hand pick 1	-	-	31/8	10	10/9	Nearly mature
Hand pick 2	-	-	14/9	7	21/9	Good
Ethrel 240ppm 1	28/8	23	20/9	4	24/9	Good
Ethrel 480ppm 1	28/8	23	20/9	4	24/9	Good
Ethrel 240ppm 2	11/9	27	8/10	2	10/10	Good, mature
Ethrel 480ppm 2	11/9	27	8/10	2	10/10	Good, mature
Control	-	-	25/10	4	29/10	Good, mature

YARLINGTON MILL: ETHREL SPRAY TREATMENTS AND PROCESSING

Treatment	Spray date	days to	Harvest	days to	Mill and press	Condition at processing
Hand pick 1	-	-	31/8	10	10/9	Pale, immature
Hand pick 2	-	-	14/9	7	21/9	Good, v green
Ethrel 240ppm 1	28/8	24	21/9	3	24/9	Good
Ethrel 480ppm 1	28/8	24	21/9	3	24/9	Good
Ethrel 240ppm 2	11/9	28	9/10	6	15/10	Good, mature
Ethrel 480ppm 2	11/9	28	9/10	6	15/10	Good, mature
Control	-	-	9/11	11	20/11	Good

MICHELIN: EFFECT OF ETHREL SPRAYS ON JUICE

Treatment	S.G.	% malic	pH	% tannin	N mg/100ml
Hand pick 1	50.1	0.35	3.80	0.21	34.01
Hand pick 2	50.0	0.31	3.90	0.15	30.97
Hand pick 3	58.0	0.31	3.92	0.21	23.72
Ethrel 240ppm 1	55.7	0.29	3.95	0.22	24.41
Ethrel 480ppm 1	55.7	0.27	3.95	0.24	23.00
Ethrel 240ppm 2	55.9	0.26	4.00	0.19	19.22
Ethrel 480ppm 2	57.0	0.27	4.00	0.20	16.80
Ethrel 240ppm 3	55.2	0.29	3.95	0.18	22.64
Ethrel 480ppm 3	55.2	0.27	3.95	0.18	19.29
Control	53.5	0.27	3.98	0.16	19.55

DABINETT: EFFECT OF ETHREL SPRAYS ON JUICE

Treatment	S.G.	% malic	pH	% tannin	Nmg/100ml
Hand pick 1	47.8	0.19	4.05	0.33	8.33
Hand pick 2	50.0	0.19	4.20	0.24	13.83
Hand pick 3	63.5	0.16	4.30	0.33	7.02
Ethrel 240ppm 1	62.2	0.15	4.40	0.36	8.21
Ethrel 480ppm 1	59.5	0.14	4.46	0.32	7.67
Ethrel 240ppm 2	58.5	0.15	4.38	0.31	9.14
Ethrel 480ppm 2	59.7	0.15	4.42	0.31	8.49
Ethrel 240ppm 3	58.1	0.15	4.30	0.28	8.53
Ethrel 480ppm 3	57.3	0.15	4.26	0.31	9.18
Control	60.0	0.14	4.40	0.28	8.53

TREMLETTS BITTER: EFFECT OF ETHREL SPRAYS ON JUICE

Treatment	S.G.	% malic	pH	% tannin	Nmg/100ml
Hand pick 1	51.7	0.34	3.70	0.46	13.76
Hand pick 2	50.2	0.29	3.90	0.31	6.50
Ethrel 240ppm 1	56.9	0.28	3.85	0.44	6.37
Ethrel 480ppm 1	56.9	0.28	3.85	0.44	5.51
Ethrel 240ppm 2	56.3	0.29	3.85	0.45	7.24
Ethrel 480ppm 2	58.5	0.29	3.85	0.45	5.94
Control	60.0	0.28	3.98	0.37	5.14

YARLINGTON MILL: EFFECT OF ETHREL SPRAYS ON JUICE

Treatment	S.G.	% malic	pH	% tannin	Nmg/100ml
Hand pick 1	46.6	0.25	3.85	0.36	16.32
Hand pick 2	47.9	0.24	3.95	0.30	11.50
Ethrel 240ppm 1	50.9	0.27	4.05	0.38	11.34
Ethrel 480ppm 1	50.7	0.24	4.00	0.38	7.73
Ethrel 240ppm 2	53.7	0.22	4.10	0.31	-
Ethrel 480ppm 2	50.7	0.22	4.10	0.33	7.41
Control	52.5	0.23	4.00	0.27	8.64

EFFECT OF ETHREL SPRAYS ON CIDER

Variety	Treatment	S.G.	% malic	pH
Michelin	Hand pick 1	2.8	0.46	3.60
	Ethrel 240ppm 1	0.5	0.35	3.90
	Ethrel 240ppm 2	3.1	0.38	3.75
	Ethrel 480ppm 2	2.4	0.37	3.80
	Ethrel 240ppm 3	2.1	0.40	3.70
	Control	1.2	0.40	3.68
Dabinett	Hand pick 1	1.4	0.25	4.00
Tremletts	Hand pick 1	3.6	0.36	3.90
	Ethrel 240ppm 1	5.1	0.32	3.90
	Ethrel 480ppm 1	4.1	0.37	3.9
	Control	5.9	0.46	3.70
Yarlington	Hand pick 1	3.3	0.35	3.85
	Ethrel 480ppm 1	4.4	0.34	3.95
	Control	3.2	0.40	3.80

NOTES ON THE USE OF ETHREL C FOR RIPENING CIDER APPLES

Specific Off-Label Approval [SOLA] has been granted for the use of Ethrel C as a plant growth regulator spray for ripening cider apples.

Ethrel C spray releases ethylene, a gas occuring naturally during normal fruit maturation and which accelerates its ripening. Ethrel spray can advance fruit drop by about 2 weeks. Treatment can help synchronise drop in varieties which normally fall or shake over a prolonged period, eg Browns Apple. Fruit ripened this way will still contain about the same level of sugar as naturally matured fruit. There seems to be little effect on subsequent fermentation.

Spray timing
Ethrel works best if sprayed during warm, dry weather, 2 - 3 weeks before the anticipated fruit collection. Activity can be slower in cold, wet conditions.
For example; Browns Apple is normally shakeable in the first week of October. Apply Ethrel spray around 15th September to anticipate a comprehensive drop by the end of September.

Rates of use
SOLA regulations specify the following statutory requirements;
Ethrel C, containing 2-Chloroethylphosphonic acid, may be used only as a plant growth regulator on apples intended for cider making. A single application per crop. Rate of use must not to exceed 100ml Ethrel C in 100 litres water. Apply using a conventional orchard sprayer at not less than 500 litres/ha [200l or 44 gals/acre]. Harvest interval 5 days.

Suggested rate
200ml Ethrel C in 200 litres [44 gals] per acre
The cost for this is £40 approx. per acre.

Improving spray activity
Ethrel works best in an acidic spray solution. The addition of an acidifying agent eg; Senifos, LI 700 etc is advisable.

Operator protection
Engineering control of operator exposure must be used where reasonably practicable. Wear suitable gloves and face shield when handling concentrate. Engineering controls may replace personal protective equipment if a COSHH assessment shows they provide an equal or higher standard of protection.

Environmental protection
Harmful to fish and aquatic life. Avoid contamination of water and ditches.

'**Off-label use**' is at all times done at the user's choosing and the commercial risk is at all times theirs.

Updated Autumn 2000, Liz Copas NACM