CONTROL OF GRASS COMPETITION

Summary
This trial was set up in Bulmers Moorhampton orchard of Ashton Bitter trees to assess the competitive effect of alleyway sward grass on young trees and ways of mollifying trees stress. The results are summarised:

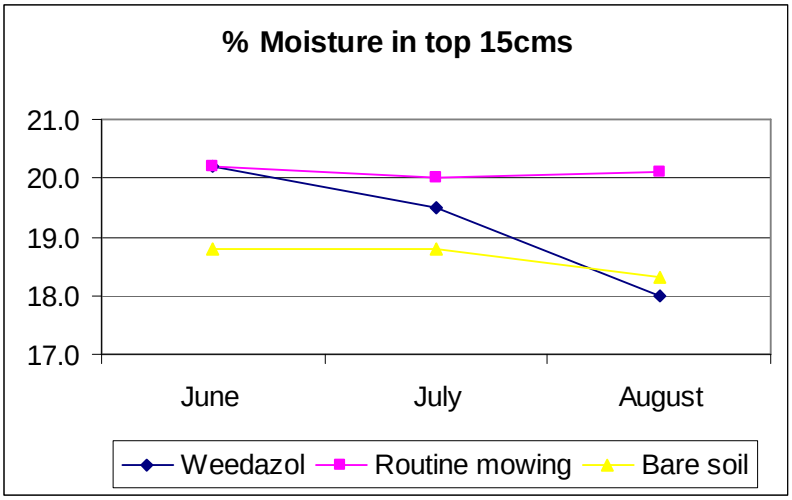
- Fruit harvested in the grassed down treatments was cleaner but the maintenance of a 30cm bare strip is essential for efficient mowing management
- Good dwarf grass mixtures are essential to minimise competition.
- Bare soil offers more competition with the trees for water, being drier than that under grass in August.
- Mow infrequently (at 15 – 20 cm grass height) in dry weather to encourage a mulch effect.
- Aminotriazole treated grass re-grew by 70% before the end of the season and was suitable for machine harvesting.
- Aminotriazole approval allows last application at end of June [1995]
- Grass cover is more competitive for nitrate than for water.
    - In July, soil N levels in grassed down treatments were 60% lower than in bare soil.
    - In July, soil N levels in late herbicide treated areas were 35 – 40% lower than in bare soil
    - In August, soil N levels in both treatments were 50% lower.

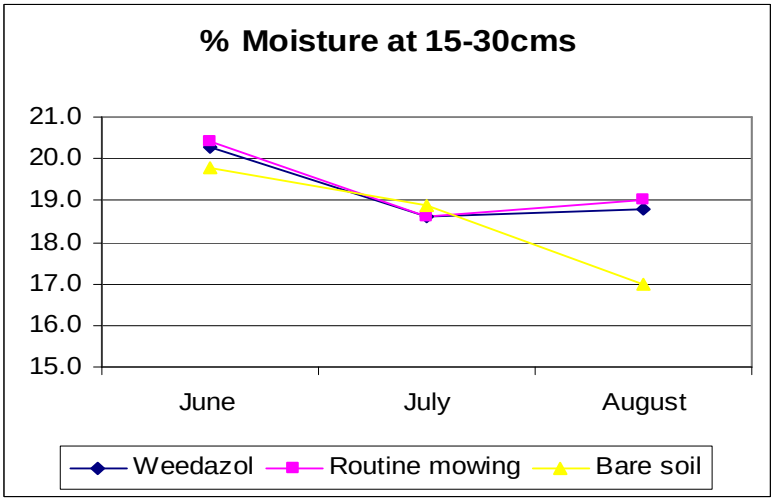
Trial treatments
Two low-maintenance grass mixtures; BSH A6 and PRO 120 were established under the trees with a 30cm central bare strip, the normal herbicide strip width being 1.5m
Three grass management treatments were used

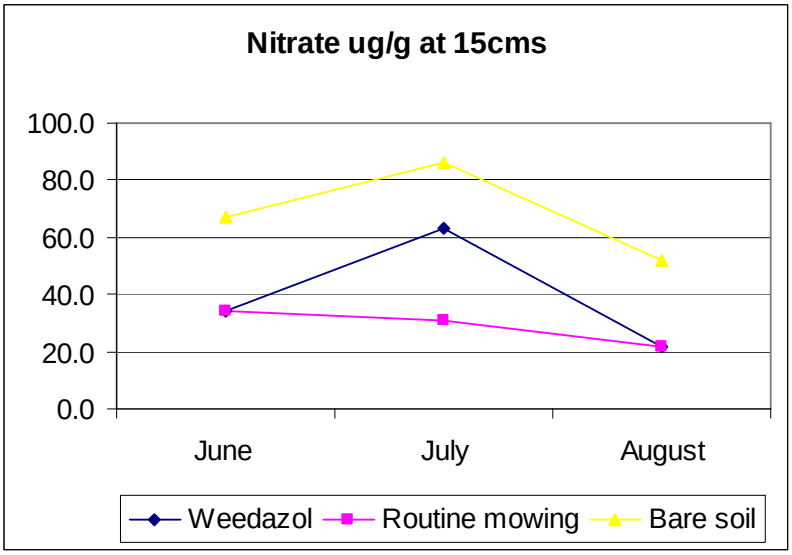
- Routine mowing as required.
- ¼ rate paraquat applied in June or August.
- ¼ rate aminotriazole [Weedazol] applied in late June.

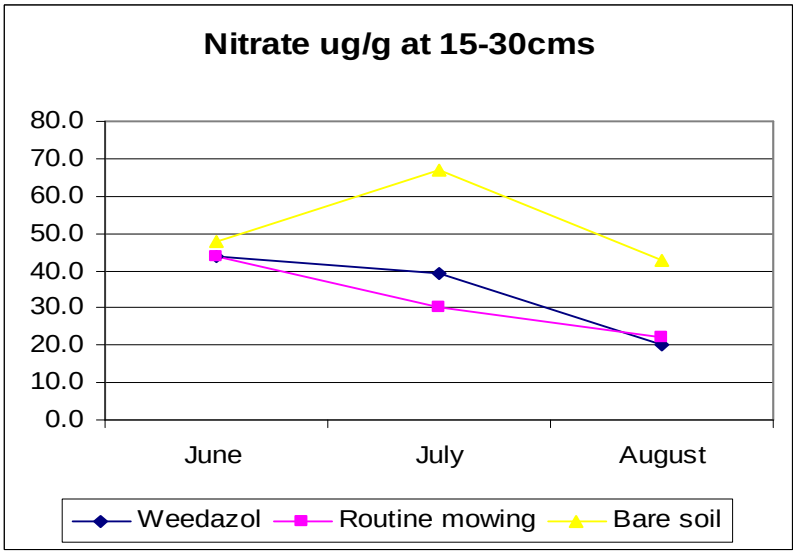
Results
Grass growth was checked by spraying either paraquat or aminotriazole in early June. Although grass sprayed with aminotriazole did not grow at all for 4 weeks, there was a rapid recovery after this and aminotriazole was reapplied after mowing at the end of the month. There was little further re-growth but grass cover was reasonable by the end of the season. Aminotriazole treated grass produced nearly 40% less dry matter in this important midsummer period. Paraquat treated grass required no further mowing until September, but re-growth was patchy. Untreated control plots needed 3 more cuts.
Free nitrate levels under untreated grass dropped rapidly during the growing season to 40% of bare soil values. Nitrate levels fell more slowly under herbicided grass but were similar to untreated controls by the end of August.
Unexpectedly, grass cover acted well as a moisture conserving mulch. Throughout June – August soil moisture levels were slightly higher under all grass treatments than in bare soil. Tree growth, measured by trunk girth increments and leaf nitrate, was unaffected.

Treatment with ¼ rate aminotriazole saved mowing, helped to reduce nitrate competition and left a reasonable sward at the end of the season. But the treatment is relatively short-lived and must not be applied after the latest permitted date, 30June.






Nitrate ug/g at 15cms
100.0
80.0
60.0
40.0
20.0
0.0
June
July
August
Weedazol
Routine mowing
Bare soil


Nitrate ug/g at 15-30cms
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
June
July
August
Weedazol
Routine mowing
Bare soil

grass cut fresh wt

			totals	
			Routine	**Weedazol**
block	Mow 3	Mow 4	3+4	4 only
1	4035	694		3843
2	3684	833		4722
3	3725	4352		3796
4	5085	3982		6019
	4132.3	2465.3	6597.5	4595.0

% control: 70

grass cut dry wt

	Mow 3	Mow 4	3+4	4 only
1	1049	153		849
2	884	160		907
3	986	962		839
4	1220	764		1156
	1034.8	509.8	1544.5	937.8

% control: 61

			routine	**Weedazol**	**Bare**
grass height 6 weeks after[cms]			12.5	22.0	nil
Leaf nitrate % [August]			1.9	2.0	2.1