

APPENDICES

Table A1: Scientific name, common name and Thai name of fruits, crops, insects and weeds found on rainfed upland in the Chom Tong Land reform area at, Chiang Mai, 2000

Scientific name	Common name	Thai name
Trees		
<i>Artocarpus heterophyllus</i> Lam.	Jackfruit	ขนุน
<i>Cocos nucifera</i> L. var. <i>nucifera</i>	Coconut	มะพร้าว
<i>Dimocarpus longan</i> Lour.	Longan	ลำไย
<i>Lansium domesticum</i> Correa	Langsat	लगสาด
<i>Mangifera indica</i> L.	Mango	มะม่วง
<i>Psidium guajava</i> L.	Guava	ฝรั่ง
<i>Sandoricum koetjape</i> (Burm. f.) Merr.	Santol	กระท้อน
<i>Syzygium samarangense</i> (Blume) Merr. & Perry var. <i>samarangense</i>	Wax apple	ขมพู่แก้มแหม่ม
<i>Tamarindus indica</i> L.	Tamarind	มะขาม
<i>Tectona grandis</i> L. f.	Teak	สัก
<i>Vitis vinifera</i> L.	Grape	องุ่น
Crops		
<i>Capsicum frutescens</i> L. var. <i>frutescens</i>	Chili	พริก
<i>Glycine max</i> (L.) Merr.	Soybean	ถั่วเหลือง
<i>Oryza sativa</i> L.	Rice	ข้าว
<i>Sorghum bicolor</i> L.	Sorghum	ข้าวฟ่าง
<i>Tagetes erecta</i> L.	African Marigold	ดาวเรืองใหญ่
<i>Tagetes patula</i> L.	French Marigold	ดาวเรืองเล็ก
<i>Vigna radiata</i> (L.) R. Wilczek	Mung bean	ถั่วเขียว
<i>Zea mays</i> L.	Maize	ข้าวโพด
Forage crops		
<i>Stylosanthes hamata</i> cv. Verano	Verano stylo	ถั่วสไตโล, ถั่วฮามาต้า
<i>Stylosanthes sundaica</i> Taub.	Townsville stylo	

Table A1 (cont.)

Scientific name	Common name	Thai name
Insects		
<i>Deporaus marginatus</i> Pascoe	mango leaf cutting weevil	ด้วงวงกัดใบมะม่วง
<i>Hypomeces squamosus</i> Fabricius	green weevil, leaf eating weevil, snout weevil	แมลงค่อมทอง
<i>Idioscopus clypealis</i> (Lethierry)	mango hopper (lethierry)	เพลี้ยจักจั่นมะม่วง
<i>I. niveosparus</i> (Lethierry)	mango hopper (lethierry)	เพลี้ยจักจั่นมะม่วง
<i>Plocaederus ferrugineus</i> Guen	stem boring grub	ด้วงเจาะลำต้นมะม่วง
<i>P. fulvicornis</i> Guer.	cerambycid	ด้วงหนวดยาว
<i>Odontotermes takensis</i> Ahmad	termite	ปลวก
Diseases		
<i>Botryodiplodia theobromae</i> Pat.	gummosis disease	โรครยางไหล
<i>Capnodium mangiferum</i> (Cooke & Br.) Sacc	sooty mold	โรคราดำ
<i>Meliola mangiferae</i> Earle	sooty mold	โรคราดำ
<i>Collectotrichum gloeosporioides</i> Penzig	anthracnose	โรคแอนแทรกโนส
Broadleaved and grass weeds		
<i>Ammannia baccifera</i> L.	acrid weed, tooth cup	มะไฟนกุ่ม
<i>Boerhavia diffusa</i> L.	red spiderling	ผักขมหิน
<i>Borreria laevis</i> (Lmk.) Griseb.	smooth button weed	หญ้าเขมร, ผักม่วง
<i>Commelina benghalensis</i> L.	tropical spiderwort	ผักปลาบ
<i>Dactyloctenium aegyptium</i> (L.) P. Beauv.	crowfoot grass	หญ้าปากควาย
<i>Digitaria setigera</i> Roth ex Roem. & Schult. var. <i>setigera</i>	large crabgrass	หญ้าตีนนก
<i>Eleusine indica</i> (L.) Gaertn.	goose grass	หญ้าตีนกา
<i>Eragrostis amabilis</i> (L.) Nees	feather lovegrass	หญ้าหวาย
<i>Gomphrena celosioides</i> Mart.	wild globe everlasting	บานไม่รู้โรยป่า
<i>Hedyotis corymbosa</i> (L.) Lmk.	old world diamond-flower	หญ้าลิ้นงู
<i>Lindernia ciliata</i> (Colsm.) Penn.	haired slitwort	หญ้าเงียงป่า

Table A1 (cont.)

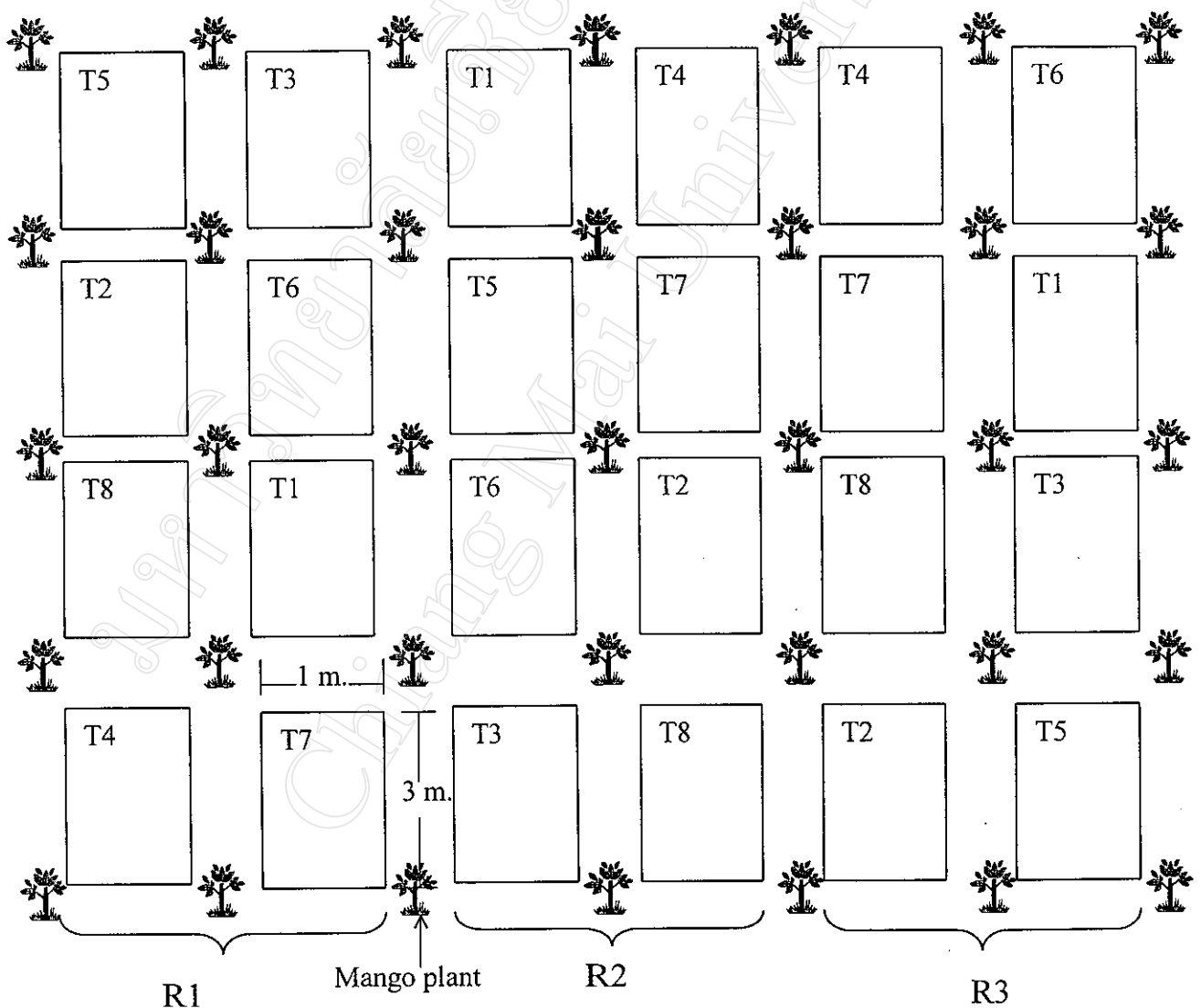
Scientific name	Common name	Thai name
<i>Rhynchelytrum repens</i> (Willd.) C.E. Hubb.	natal grass	หญ้าดอกแดง หญ้าดอกชมพู
<i>Richardia brasiliensis</i> Gomez	Brazil pusley	หญ้าท่าพระ, กระดุมใบ
<i>Sida acuta</i> Burm. f.	southern sida	หญ้าขีดใบยาว
<i>Tridax procumbens</i> L.	coat buttons	ตีนตุ๊กแก
<i>Urochloa distachya</i> (L.) T. Q. Nguyen	armgrass millet, ass grass	หญ้าขนเล็ก

Appendix B: Layout and diagram of field experiment

B1: Design of experiment follows factorial in randomized complete block design

- | | |
|---|--|
| T1 No Fertilizer + 1 cutting + No weeding | T5 Fertilizer + 1 cutting + No weeding |
| T2 No Fertilizer + 1 cutting + Weeding | T6 Fertilizer + 1 cutting + Weeding |
| T3 No Fertilizer + 2 cutting + No weeding | T7 Fertilizer + 2 cutting + No weeding |
| T4 No Fertilizer + 2 cutting + Weeding | T8 Fertilizer + 2 cutting + Weeding |

B2: Diagram of layout and plot size



B3: Summed Dominance Ratio (SDR)

$$\%SDR = \frac{\%Relative\ density + \%Relative\ frequency + \%Relative\ dry\ weight}{3}$$

$$\%Relative\ density = \frac{\text{density for a species} \times 100\%}{\text{total density for all species}}$$

$$\%Relative\ frequency = \frac{\text{frequency value for a species} \times 100\%}{\text{total frequency value for all species}}$$

$$\%Relative\ dry\ weight = \frac{\text{dry weight for a species} \times 100\%}{\text{total dry weight for all species}}$$

Appendix C: Analysis of variance

C1: Analysis of variance for mature plant density of *S. hamata* in April

SOURCE	DF	SS	MS	F	P
REP (A)	2	9.3333	4.6667	0.0600	0.9385
FER (B)	1	42.6667	42.6667	0.5800	0.4580
WEEDING (C)	1	0.0000	0.0000	0.0000	1.0000
CUTTING (D)	1	0.0000	0.0000	0.0000	1.0000
B*C	1	10.6667	10.6667	0.1500	0.7085
B*D	1	10.6667	10.6667	0.1500	0.7085
C*D	1	42.6667	42.6667	0.5800	0.4580
B*C*D	1	96.0000	96.0000	1.3100	0.2714
A*B*C*D	14	1025.3300	73.2381		
TOTAL	23	1237.3300			

C2: Analysis of variance for mature plant density of *S. hamata* at mid-May

SOURCE	DF	SS	MS	F	P
REP (A)	2	9.3333	4.6667	0.0600	0.9385
FER (B)	1	42.6667	42.6667	0.5800	0.4580
WEEDING (C)	1	0.0000	0.0000	-	1.0000
CUTTING (D)	1	0.0000	0.0000	-	1.0000
B*C	1	10.6667	10.6667	0.1500	0.7085
B*D	1	10.6667	10.6667	0.1500	0.7085
C*D	1	42.6667	42.6667	0.5800	0.4580
B*C*D	1	96.0000	96.0000	1.3100	0.2714
A*B*C*D	14	1,025.3300	73.2381		
TOTAL	23	1,237.3300			

C3: Analysis of variance for mature plant density of *S. hamata* in May

SOURCE	DF	SS	MS	F	P
REP (A)	2	133.3330	66.6667	0.8700	0.4402
FER (B)	1	240.6670	240.6670	3.1400	0.0980
WEEDING (C)	1	16.6667	16.6667	0.2200	0.6480
CUTTING (D)	1	0.6667	0.6667	0.0100	0.9270
B*C	1	16.6667	16.6667	0.2200	0.6480
B*D	1	16.6667	16.6667	0.2200	0.6480
C*D	1	6.0000	6.0000	0.0800	0.7836
B*C*D	1	112.6670	112.6670	1.4700	0.2452
A*B*C*D	14	1,072.0000	76.5714		
TOTAL	23	1,615.3300			

C4: Analysis of variance for mature plant density of *S. hamata* in June

SOURCE	DF	SS	MS	F	P
REP (A)	2	316.0000	158.0000	1.7400	0.2119
FER (B)	1	240.6670	240.6670	2.6500	0.1261
WEEDING (C)	1	0.6667	0.6667	0.0100	0.9330
CUTTING (D)	1	54.0000	54.0000	0.5900	0.4538
B*C	1	112.6670	112.6670	1.2400	0.2845
B*D	1	54.0000	54.0000	0.5900	0.4538
C*D	1	0.6667	0.6667	0.0100	0.9330
B*C*D	1	6.0000	6.0000	0.0700	0.8010
A*B*C*D	14	1,273.3300	90.9524		
TOTAL	23	2,058.0000			

C5: Analysis of variance for mature plant density of *S. hamata* in July

SOURCE	DF	SS	MS	F	P
REP (A)	2	17.3333	8.6667	0.1400	0.8722
FER (B)	1	80.6667	80.6667	1.2900	0.2760
WEEDING (C)	1	54.0000	54.0000	0.8600	0.3693
CUTTING (D)	1	54.0000	54.0000	0.8600	0.3693
B*C	1	16.6667	16.6667	0.2700	0.6144
B*D	1	6.0000	6.0000	0.1000	0.7617
C*D	1	6.0000	6.0000	0.1000	0.7617
B*C*D	1	6.0000	6.0000	0.1000	0.7617
A*B*C*D	14	878.6670	62.7619		
TOTAL	23	1,119.3300			

C6: Analysis of variance for mature plant density of *S. hamata* in August

SOURCE	DF	SS	MS	F	P
REP (A)	2	229.3330	114.6670	1.1700	0.3386
FER (B)	1	240.6670	240.6670	2.4600	0.1392
WEEDING (C)	1	54.0000	54.0000	0.5500	0.4700
CUTTING (D)	1	16.6667	16.6667	0.1700	0.6862
B*C	1	240.6670	240.6670	2.4600	0.1392
B*D	1	16.6667	16.6667	0.1700	0.6862
C*D	1	54.0000	54.0000	0.5500	0.4700
B*C*D	1	16.6667	16.6667	0.1700	0.6862
A*B*C*D	14	1,370.6700	97.9048		
TOTAL	23	2,239.3300			

C7: Analysis of variance for mature plant density of *S. hamata* in September

SOURCE	DF	SS	MS	F	P
REP (A)	2	241.3330	120.6670	0.9600	0.4076
FER (B)	1	266.6670	266.6670	2.1200	0.1678
WEEDING (C)	1	2.6667	2.6667	0.0200	0.8864
CUTTING (D)	1	2.6667	2.6667	0.0200	0.8864
B*C	1	10.6667	10.6667	0.0800	0.7754
B*D	1	42.6667	42.6667	0.3400	0.5699
C*D	1	2.6667	2.6667	0.0200	0.8864
B*C*D	1	0.0000	0.0000	-	1.0000
A*B*C*D	14	1,764.0000	126.0000		
TOTAL	23	2,333.3300			

C8: Analysis of variance for mature plant density of *S. hamata* in October

SOURCE	DF	SS	MS	F	P
REP (A)	2	29.6133	14.8067	0.6300	0.5460
FER (B)	1	43.7400	43.7400	1.8700	0.1933
WEEDING (C)	1	1.6017	1.6017	0.0700	0.7975
CUTTING (D)	1	541.5000	541.5000	23.1200	0.0003
B*C	1	30.3750	30.3750	1.3000	0.2739
B*D	1	0.0067	0.0067	-	0.9868
C*D	1	2.5350	2.5350	0.1100	0.7470
B*C*D	1	4.6817	4.6817	0.2000	0.6617
A*B*C*D	14	327.9200	23.4229		
TOTAL	23	981.9730			

C9: Analysis of variance for newly germinated plant density of *S. hamata* at mid-May

SOURCE	DF	SS	MS	F	P
REP (A)	2	10348.0000	5174.0000	3.9100	0.0448
FER (B)	1	962.6670	962.6670	0.7300	0.4081
WEEDING (C)	1	3456.0000	3456.0000	2.6100	0.1284
CUTTING (D)	1	2.6667	2.6667	0.0000	0.9648
B*C	1	5162.6700	5162.6700	3.9000	0.0683
B*D	1	24.0000	24.0000	0.0200	0.8948
C*D	1	10.6667	10.6667	0.0100	0.9297
B*C*D	1	522.6670	522.6670	0.3900	0.5398
A*B*C*D	14	18526.7000	1323.3300		
TOTAL	23	39016.0000			

C10: Analysis of variance for newly germinated plant density of *S. hamata* in May

SOURCE	DF	SS	MS	F	P
REP (A)	2	545.3330	272.6670	0.2300	0.7980
FER (B)	1	96.0000	96.0000	0.0800	0.7805
WEEDING (C)	1	4,266.6700	4,266.6700	3.5900	0.0791
CUTTING (D)	1	2,242.6700	2,242.6700	1.8900	0.1913
B*C	1	4,482.6700	4,482.6700	3.7700	0.0726
B*D	1	864.0000	864.0000	0.7300	0.4084
C*D	1	10.6667	10.6667	0.0100	0.9259
B*C*D	1	2,904.0000	2,904.0000	2.4400	0.1404
A*B*C*D	14	16,649.3000	1,189.2400		
TOTAL	23	32,061.3000			

C11: Analysis of variance for newly germinated plant density of *S. hamata* in June

SOURCE	DF	SS	MS	F	P
REP (A)	2	697.3330	348.6670	0.5000	0.6149
FER (B)	1	0.0000	0.0000	-	1.0000
WEEDING (C)	1	1,802.6700	1,802.6700	2.6000	0.1289
CUTTING (D)	1	1,176.0000	1,176.0000	1.7000	0.2135
B*C	1	600.0000	600.0000	0.8700	0.3676
B*D	1	266.6670	266.6670	0.3900	0.5448
C*D	1	1,066.6700	1,066.6700	1.5400	0.2349
B*C*D	1	216.0000	216.0000	0.3100	0.5853
A*B*C*D	14	9,692.0000	692.2860		
TOTAL	23	15,517.3000			

C12: Analysis of variance for newly germinated plant density of *S. hamata* in July

SOURCE	DF	SS	MS	F	P
REP (A)	2	556.0000	278.0000	0.4700	0.6318
FER (B)	1	96.0000	96.0000	0.1600	0.6917
WEEDING (C)	1	42.6667	42.6667	0.0700	0.7912
CUTTING (D)	1	3,082.6700	3,082.6700	5.2600	0.0378
B*C	1	24.0000	24.0000	0.0400	0.8425
B*D	1	962.6670	962.6670	1.6400	0.2207
C*D	1	600.0000	600.0000	1.0200	0.3287
B*C*D	1	1,802.6700	1,802.6700	3.0800	0.1012
A*B*C*D	14	8,201.3300	585.8100		
TOTAL	23	15,368.0000			

C13: Analysis of variance for newly germinated plant density of *S. hamata* in August

SOURCE	DF	SS	MS	F	P
REP (A)	2	2,809.3300	1,404.6700	2.4000	0.1265
FER (B)	1	80.6667	80.6667	0.1400	0.7157
WEEDING (C)	1	560.6670	560.6670	0.9600	0.3438
CUTTING (D)	1	2,320.6700	2,320.6700	3.9700	0.0661
B*C	1	2,480.6700	2,480.6700	4.2500	0.0584
B*D	1	726.0000	726.0000	1.2400	0.2837
C*D	1	1,350.0000	1,350.0000	2.3100	0.1507
B*C*D	1	2,646.0000	2,646.0000	4.5300	0.0515
A*B*C*D	14	8,177.3300	584.0950		
TOTAL	23	21,151.3000			

C14: Analysis of variance for newly germinated plant density of *S. hamata* in September

SOURCE	DF	SS	MS	F	P
REP (A)	2	8,469.3300	4,234.6700	1.9400	0.1802
FER (B)	1	6,144.0000	6,144.0000	2.8200	0.1154
WEEDING (C)	1	0.0000	0.0000	-	1.0000
CUTTING (D)	1	266.6670	266.6670	0.1200	0.7318
B*C	1	384.0000	384.0000	0.1800	0.6811
B*D	1	522.6670	522.6670	0.2400	0.6320
C*D	1	10.6667	10.6667	-	0.9452
B*C*D	1	96.0000	96.0000	0.0400	0.8368
A*B*C*D	14	30,528.0000	2,180.5700		
TOTAL	23	46,421.3000			

C15: Analysis of variance for newly germinated plant density of *S. hamata* in October

SOURCE	DF	SS	MS	F	P
REP (A)	2	1,617.3300	808.6670	0.4400	0.6528
FER (B)	1	32.6667	32.6667	0.0200	0.8959
WEEDING (C)	1	2,166.0000	2,166.0000	1.1800	0.2961
CUTTING (D)	1	10,752.7000	10,752.7000	5.8500	0.0298
B*C	1	112.6670	112.6670	0.0600	0.8081
B*D	1	192.6670	192.6670	0.1000	0.7510
C*D	1	4,592.6700	4,592.6700	2.5000	0.1363
B*C*D	1	2,166.0000	2,166.0000	1.1800	0.2961
A*B*C*D	14	25,742.7000	1,838.7600		
TOTAL	23	47,375.3000			

C16: Analysis of variance for population (newly germinated plants and mature plants) of *S. hamata* at mid-May

SOURCE	DF	SS	MS	F	P
REP (A)	2	10225.3000	5112.6700	4.2500	0.0362
FER (B)	1	600.0000	600.0000	0.5000	0.4918
WEEDING (C)	1	3456.0000	3456.0000	2.8700	0.1124
CUTTING (D)	1	2.6667	2.6667	0.0000	0.9631
B*C	1	4704.0000	4704.0000	3.9100	0.0681
B*D	1	2.6667	2.6667	0.0000	0.9631
C*D	1	10.6667	10.6667	0.0100	0.9263
B*C*D	1	170.6670	170.6670	0.1400	0.7122
A*B*C*D	14	16857.3000	1204.1000		
TOTAL	23	36029.3			

C17: Analysis of variance for population (newly germinated plants and mature plants) of *S. hamata* in May

SOURCE	DF	SS	MS	F	P
REP (A)	2	2,401.3300	1,200.6700	2.0700	0.1626
FER (B)	1	600.0000	600.0000	1.0400	0.3259
WEEDING (C)	1	962.6670	962.6670	1.6600	0.2181
CUTTING (D)	1	2,730.6700	2,730.6700	4.7200	0.0475
B*C	1	1,176.0000	1,176.0000	2.0300	0.1760
B*D	1	522.6670	522.6670	0.9000	0.3582
C*D	1	864.0000	864.0000	1.4900	0.2420
B*C*D	1	3,082.6700	3,082.6700	5.3200	0.0368
A*B*C*D	14	8,105.3300	578.9520		
TOTAL	23	20,445.3000			

C18: Analysis of variance for population (newly germinated plants and mature plants) of *S. hamata* in June

SOURCE	DF	SS	MS	F	P
REP (A)	2	81.3333	40.6667	0.0500	0.9499
FER (B)	1	240.6670	240.6670	0.3100	0.5892
WEEDING (C)	1	1,872.6700	1,872.6700	2.3800	0.1455
CUTTING (D)	1	1,734.0000	1,734.0000	2.2000	0.1601
B*C	1	192.6670	192.6670	0.2400	0.6287
B*D	1	80.6667	80.6667	0.1000	0.7537
C*D	1	1,014.0000	1,014.0000	1.2900	0.2757
B*C*D	1	150.0000	150.0000	0.1900	0.6693
A*B*C*D	14	11,033.3000	788.0950		
TOTAL	23	16,399.3000			

C19: Analysis of variance for population (newly germinated plants and mature plants) of *S. hamata* in July

SOURCE	DF	SS	MS	F	P
REP (A)	2	485.3330	242.6670	0.3600	0.7044
FER (B)	1	352.6670	352.6670	0.5200	0.4818
WEEDING (C)	1	0.6667	0.6667	-	0.9754
CUTTING (D)	1	3,952.6700	3,952.6700	5.8500	0.0298
B*C	1	0.6667	0.6667	-	0.9754
B*D	1	1,120.6700	1,120.6700	1.6600	0.2186
C*D	1	486.0000	486.0000	0.7200	0.4106
B*C*D	1	1,600.6700	1,600.6700	2.3700	0.1460
A*B*C*D	14	9,456.0000	675.4290		
TOTAL	23	17,455.3000			

C20: Analysis of variance for population (newly germinated plants and mature plants) of *S. hamata* in August

SOURCE	DF	SS	MS	F	P
REP (A)	2	2,401.3300	1,200.6700	2.0700	0.1626
FER (B)	1	600.0000	600.0000	1.0400	0.3259
WEEDING (C)	1	962.6670	962.6670	1.6600	0.2181
CUTTING (D)	1	2,730.6700	2,730.6700	4.7200	0.0475
B*C	1	1,176.0000	1,176.0000	2.0300	0.1760
B*D	1	522.6670	522.6670	0.9000	0.3582
C*D	1	864.0000	864.0000	1.4900	0.2420
B*C*D	1	3,082.6700	3,082.6700	5.3200	0.0368
A*B*C*D	14	8,105.3300	578.9520		
TOTAL	23	20,445.3000			

C21: Analysis of variance for population (newly germinated plants and mature plants) of *S. hamata* in September

SOURCE	DF	SS	MS	F	P
REP (A)	2	123.5830	61.7917	1.1900	0.3326
FER (B)	1	315.3750	315.3750	6.0800	0.0272
WEEDING (C)	1	30.3750	30.3750	0.5900	0.4567
CUTTING (D)	1	570.3750	570.3750	11.0000	0.0051
B*C	1	15.0417	15.0417	0.2900	0.5986
B*D	1	425.0420	425.0420	8.2000	0.0125
C*D	1	45.3750	45.3750	0.8800	0.3654
B*C*D	1	330.0420	330.0420	6.3700	0.0243
A*B*C*D	14	725.7500	51.8393		
TOTAL	23	2,580.9600			

C22: Analysis of variance for population (newly germinated plants and mature plants) of *S. hamata* in October

SOURCE	DF	SS	MS	F	P
REP (A)	2	1,977.3300	988.6670	0.6200	0.5529
FER (B)	1	42.6667	42.6667	0.0300	0.8726
WEEDING (C)	1	1,802.6700	1,802.6700	1.1300	0.3063
CUTTING (D)	1	9,922.6700	9,922.6700	6.2100	0.0259
B*C	1	2.6667	2.6667	-	0.9680
B*D	1	42.6667	42.6667	0.0300	0.8726
C*D	1	3,082.6700	3,082.6700	1.9300	0.1867
B*C*D	1	770.6670	770.6670	0.4800	0.4989
A*B*C*D	14	22,385.3000	1,598.9500		
TOTAL	23	40,029.3000			

C23: Analysis of variance for height of newly germinated plants of *S. hamata* at 1 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	1.4633	0.7317	3.4200	0.0618
FER (B)	1	0.0017	0.0017	0.0100	0.9309
WEEDING (C)	1	0.0267	0.0267	0.1200	0.7294
CUTTING (D)	1	0.0067	0.0067	0.0300	0.8624
B*C	1	0.1350	0.1350	0.6300	0.4404
B*D	1	0.0417	0.0417	0.1900	0.6658
C*D	1	0.2400	0.2400	1.1200	0.3076
B*C*D	1	0.2017	0.2017	0.9400	0.3482
A*B*C*D	14	2.9967	0.2141		
TOTAL	23	5.1133			

C24: Analysis of variance for height of newly germinated plants of *S. hamata* at 4 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	13.9900	6.9950	6.1900	0.0119
FER (B)	1	2.6004	2.6004	2.3000	0.1516
WEEDING (C)	1	1.6538	1.6538	1.4600	0.2465
CUTTING (D)	1	4.0838	4.0838	3.6100	0.0781
B*C	1	0.0704	0.0704	0.0600	0.8065
B*D	1	0.4538	0.4538	0.4000	0.5365
C*D	1	0.0104	0.0104	0.0100	0.9249
B*C*D	1	1.4504	1.4504	1.2800	0.2763
A*B*C*D	14	15.8233	1.1302		
TOTAL	23	40.1363			

C25: Analysis of variance for height of newly germinated plants of *S. hamata* at 6 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	28.9525	14.4762	2.2900	0.1378
FER (B)	1	18.7267	18.7267	2.9600	0.1072
WEEDING (C)	1	3.3750	3.3750	0.5300	0.4769
CUTTING (D)	1	0.1667	0.1667	0.0300	0.8733
B*C	1	8.6400	8.6400	1.3700	0.2618
B*D	1	5.4150	5.4150	0.8600	0.3703
C*D	1	0.0067	0.0067	-	0.9745
B*C*D	1	0.8817	0.8817	0.1400	0.7143
A*B*C*D	14	88.4608	6.3186		
TOTAL	23	154.6250			

C26: Analysis of variance for height of newly germinated plants of *S. hamata* at 8 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	9.40333	4.70167	0.76	0.4879
FER (B)	1	0.00667	0.00667	0	0.9743
WEEDING (C)	1	2.66667	2.66667	0.43	0.5233
CUTTING (D)	1	1.70667	1.70667	0.27	0.6086
B*C	1	6.82667	6.82667	1.1	0.3126
B*D	1	1.30667	1.30667	0.21	0.6538
C*D	1	1.92667	1.92667	0.31	0.5867
B*C*D	1	11.2067	11.2067	1.8	0.2009
A*B*C*D	14	87.1033	6.22167		
TOTAL	23	122.153			

C27: Analysis of variance for height of newly germinated plants of *S. hamata* at 10 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	3.7975	1.8988	0.3000	0.7477
FER (B)	1	72.1067	72.1067	11.2800	0.0047
WEEDING (C)	1	2.1600	2.1600	0.3400	0.5704
CUTTING (D)	1	2.9400	2.9400	0.4600	0.5088
B*C	1	6.4067	6.4067	1.0000	0.3339
B*D	1	0.1067	0.1067	0.0200	0.8991
C*D	1	0.6667	0.6667	0.1000	0.7516
B*C*D	1	1.9267	1.9267	0.3000	0.5917
A*B*C*D	14	89.5292	6.3949		
TOTAL	23	179.6400			

C28: Analysis of variance for height of newly germinated plants of *S. hamata* at 12 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	3.6258	1.8129	0.2600	0.7732
FER (B)	1	35.0417	35.0417	5.0600	0.0410
WEEDING (C)	1	0.2400	0.2400	0.0300	0.8549
CUTTING (D)	1	1.7067	1.7067	0.2500	0.6272
B*C	1	1.7067	1.7067	0.2500	0.6272
B*D	1	23.2067	23.2067	3.3500	0.0884
C*D	1	4.6817	4.6817	0.6800	0.4246
B*C*D	1	7.0417	7.0417	1.0200	0.3302
A*B*C*D	14	96.8875	6.9205		
TOTAL	23	174.1380			

C29: Analysis of variance for height of newly germinated plants of *S. hamata* at 15 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	31.0433	15.5217	2.3300	0.1336
FER (B)	1	109.2270	109.2270	16.4100	0.0012
WEEDING (C)	1	7.0417	7.0417	1.0600	0.3211
CUTTING (D)	1	2.1600	2.1600	0.3200	0.5779
B*C	1	18.7267	18.7267	2.8100	0.1156
B*D	1	4.6817	4.6817	0.7000	0.4157
C*D	1	24.8067	24.8067	3.7300	0.0740
B*C*D	1	0.0150	0.0150	-	0.9628
A*B*C*D	14	93.1767	6.6555		
TOTAL	23	290.8780			

C30: Analysis of variance for height of newly germinated plants of *S. hamata* at 17 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	4.5300	2.2650	0.2700	0.7664
FER (B)	1	46.4817	46.4817	5.5700	0.0334
WEEDING (C)	1	4.1667	4.1667	0.5000	0.4916
CUTTING (D)	1	4.8600	4.8600	0.5800	0.4582
B*C	1	8.1667	8.1667	0.9800	0.3395
B*D	1	3.8400	3.8400	0.4600	0.5088
C*D	1	1.4017	1.4017	0.1700	0.6882
B*C*D	1	0.3750	0.3750	0.0400	0.8352
A*B*C*D	14	116.9230	8.3517		
TOTAL	23	190.7450			

C31: Analysis of variance for height of newly germinated plants of *S. hamata* at 19 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	9.9008	4.9504	0.4800	0.6304
FER (B)	1	10.2704	10.2704	0.9900	0.3367
WEEDING (C)	1	12.1837	12.1837	1.1700	0.2969
CUTTING (D)	1	913.9000	913.9000	88.0500	-
B*C	1	41.3437	41.3437	3.9800	0.0658
B*D	1	0.1838	0.1838	0.0200	0.8960
C*D	1	0.3504	0.3504	0.0300	0.8569
B*C*D	1	17.8538	17.8538	1.7200	0.2108
A*B*C*D	14	145.3130	10.3795		
TOTAL	23	1,151.3000			

C32: Analysis of variance for height of newly germinated plants of *S. hamata* at 21 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	24.0233	12.0117	0.3500	0.7132
FER (B)	1	3.0817	3.0817	0.0900	0.7700
WEEDING (C)	1	27.7350	27.7350	0.8000	0.3864
CUTTING (D)	1	1,335.0400	1,335.0400	38.4900	-
B*C	1	29.4817	29.4817	0.8500	0.3722
B*D	1	64.6817	64.6817	1.8600	0.1936
C*D	1	1.6017	1.6017	0.0500	0.8330
B*C*D	1	42.1350	42.1350	1.2100	0.2890
A*B*C*D	14	485.6570	34.6898		
TOTAL	23	2,013.4400			

C33: Analysis of variance for height of newly germinated plants of *S. hamata* at 23 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	55.5525	27.7762	0.7100	0.5086
FER (B)	1	32.4338	32.4338	0.8300	0.3780
WEEDING (C)	1	0.3038	0.3038	0.0100	0.9310
CUTTING (D)	1	981.7600	981.7600	25.0900	0.0002
B*C	1	80.3004	80.3004	2.0500	0.1740
B*D	1	29.7038	29.7038	0.7600	0.3983
C*D	1	53.1037	53.1037	1.3600	0.2635
B*C*D	1	9.0038	9.0038	0.2300	0.6389
A*B*C*D	14	547.8940	39.1353		
TOTAL	23	1,790.0600			

C34: Analysis of variance for height of newly germinated plants of *S. hamata* at 25 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	74.9633	37.4817	0.9900	0.3976
FER (B)	1	5.2267	5.2267	0.1400	0.7163
WEEDING (C)	1	5.6067	5.6067	0.1500	0.7067
CUTTING (D)	1	420.0070	420.0070	11.0500	0.0050
B*C	1	3.8400	3.8400	0.1000	0.7553
B*D	1	2.1600	2.1600	0.0600	0.8150
C*D	1	2.9400	2.9400	0.0800	0.7850
B*C*D	1	0.2400	0.2400	0.0100	0.9378
A*B*C*D	14	532.2100	38.0150		
TOTAL	23	1,047.1900			

C35: Analysis of variance for height of mature plants of *S. hamata* at 1 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	3.1108	1.5554	3.2100	0.0713
FER (B)	1	0.0067	0.0067	0.0100	0.9083
WEEDING (C)	1	0.5400	0.5400	1.1100	0.3092
CUTTING (D)	1	0.6017	0.6017	1.2400	0.2841
B*C	1	0.3750	0.3750	0.7700	0.3940
B*D	1	0.9600	0.9600	1.9800	0.1812
C*D	1	1.5000	1.5000	3.0900	0.1005
B*C*D	1	0.0150	0.0150	0.0300	0.8629
A*B*C*D	14	6.7892	0.4849		
TOTAL	23	13.8983			

C36: Analysis of variance for height of mature plants of *S. hamata* at 4 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	2.7358	1.3679	0.4200	0.6661
FER (B)	1	12.7604	12.7604	3.9000	0.0683
WEEDING (C)	1	5.1338	5.1338	1.5700	0.2308
CUTTING (D)	1	0.0038	0.0038	-	0.9735
B*C	1	1.5504	1.5504	0.4700	0.5024
B*D	1	0.1204	0.1204	0.0400	0.8506
C*D	1	0.0704	0.0704	0.0200	0.8854
B*C*D	1	0.1204	0.1204	0.0400	0.8506
A*B*C*D	14	45.7842	3.2703		
TOTAL	23	68.2796			

C37: Analysis of variance for height of mature plants of *S. hamata* at 6 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	115.1310	57.5654	1.8600	0.1915
FER (B)	1	103.7500	103.7500	3.3600	0.0881
WEEDING (C)	1	10.2704	10.2704	0.3300	0.5733
CUTTING (D)	1	34.8004	34.8004	1.1300	0.3064
B*C	1	78.1204	78.1204	2.5300	0.1340
B*D	1	14.2604	14.2604	0.4600	0.5078
C*D	1	15.2004	15.2004	0.4900	0.4944
B*C*D	1	32.4337	32.4337	1.0500	0.3228
A*B*C*D	14	432.2630	30.8759		
TOTAL	23	836.2300			

C38: Analysis of variance for height of mature plants of *S. hamata* at 8 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	27.1233	13.5617	2.3500	0.1315
FER (B)	1	3.6817	3.6817	0.6400	0.4375
WEEDING (C)	1	1.8150	1.8150	0.3100	0.5836
CUTTING (D)	1	9.8817	9.8817	1.7100	0.2115
B*C	1	5.8017	5.8017	1.0100	0.3327
B*D	1	1.6017	1.6017	0.2800	0.6063
C*D	1	6.2017	6.2017	1.0800	0.3172
B*C*D	1	0.2017	0.2017	0.0300	0.8543
A*B*C*D	14	80.6900	5.7636		
TOTAL	23	136.9980			

C39: Analysis of variance for height of mature plants of *S. hamata* at 10 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	5.9633	2.9817	0.6700	0.5287
FER (B)	1	1.5000	1.5000	0.3400	0.5716
WEEDING (C)	1	0.1067	0.1067	0.0200	0.8794
CUTTING (D)	1	0.9600	0.9600	0.2100	0.6502
B*C	1	15.3600	15.3600	3.4400	0.0849
B*D	1	1.3067	1.3067	0.2900	0.5972
C*D	1	1.9267	1.9267	0.4300	0.5221
B*C*D	1	1.5000	1.5000	0.3400	0.5716
A*B*C*D	14	62.5700	4.4693		
TOTAL	23	91.1933			

C40: Analysis of variance for height of mature plants of *S. hamata* at 12 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	10.3225	5.1613	0.7600	0.4854
FER (B)	1	23.4038	23.4038	3.4500	0.0843
WEEDING (C)	1	3.7604	3.7604	0.5500	0.4687
CUTTING (D)	1	0.5104	0.5104	0.0800	0.7878
B*C	1	3.4504	3.4504	0.5100	0.4873
B*D	1	8.0504	8.0504	1.1900	0.2942
C*D	1	0.1838	0.1838	0.0300	0.8716
B*C*D	1	0.0038	0.0038	-	0.9816
A*B*C*D	14	94.9108	6.7794		
TOTAL	23	144.5960			

C41: Analysis of variance for height of mature plants of *S. hamata* at 15 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	12.0325	6.0163	0.6200	0.5544
FER (B)	1	23.4038	23.4038	2.3900	0.1441
WEEDING (C)	1	16.8338	16.8338	1.7200	0.2105
CUTTING (D)	1	0.0704	0.0704	0.0100	0.9336
B*C	1	13.6504	13.6504	1.4000	0.2570
B*D	1	19.2604	19.2604	1.9700	0.1822
C*D	1	8.2838	8.2838	0.8500	0.3729
B*C*D	1	5.9004	5.9004	0.6000	0.4501
A*B*C*D	14	136.8410	9.7744		
TOTAL	23	236.2760			

C42: Analysis of variance for height of mature plants of *S. hamata* at 17 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	10.5733	5.2867	0.6600	0.5309
FER (B)	1	72.8017	72.8017	9.1300	0.0092
WEEDING (C)	1	2.5350	2.5350	0.3200	0.5819
CUTTING (D)	1	12.6150	12.6150	1.5800	0.2292
B*C	1	2.5350	2.5350	0.3200	0.5819
B*D	1	0.6017	0.6017	0.0800	0.7876
C*D	1	0.8817	0.8817	0.1100	0.7445
B*C*D	1	3.0817	3.0817	0.3900	0.5443
A*B*C*D	14	111.6930	7.9781		
TOTAL	23	217.3180			

C43: Analysis of variance for height of mature plants of *S. hamata* at 19 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	3.8758	1.9379	0.1900	0.8271
FER (B)	1	20.3504	20.3504	2.0200	0.1770
WEEDING (C)	1	6.5104	6.5104	0.6500	0.4348
CUTTING (D)	1	891.8200	891.8200	88.5600	-
B*C	1	31.0538	31.0538	3.0800	0.1009
B*D	1	11.6204	11.6204	1.1500	0.3009
C*D	1	0.0204	0.0204	-	0.9647
B*C*D	1	16.5004	16.5004	1.6400	0.2213
A*B*C*D	14	140.9770	10.0698		
TOTAL	23	1,122.7300			

C44: Analysis of variance for height of mature plants of *S. hamata* at 21 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	15.8433	7.9217	0.2000	0.8213
FER (B)	1	5.6067	5.6067	0.1400	0.7126
WEEDING (C)	1	3.8400	3.8400	0.1000	0.7603
CUTTING (D)	1	1,109.7600	1,109.7600	27.9700	0.0001
B*C	1	28.1667	28.1667	0.7100	0.4136
B*D	1	5.6067	5.6067	0.1400	0.7126
C*D	1	54.0000	54.0000	1.3600	0.2629
B*C*D	1	50.4600	50.4600	1.2700	0.2784
A*B*C*D	14	555.4900	39.6779		
TOTAL	23	1,828.7700			

C45: Analysis of variance for height of mature plants of *S. hamata* at 23 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	69.4108	34.7054	0.8600	0.4436
FER (B)	1	0.2017	0.2017	0.0100	0.9446
WEEDING (C)	1	7.4817	7.4817	0.1900	0.6730
CUTTING (D)	1	878.4600	878.4600	21.8200	0.0004
B*C	1	21.2817	21.2817	0.5300	0.4792
B*D	1	21.6600	21.6600	0.5400	0.4754
C*D	1	40.5600	40.5600	1.0100	0.3326
B*C*D	1	9.6267	9.6267	0.2400	0.6324
A*B*C*D	14	563.6560	40.2611		
TOTAL	23	1,612.3400			

C46: Analysis of variance for height of mature plants of *S. hamata* at 25 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	41.9408	20.9704	0.7700	0.4827
FER (B)	1	15.6817	15.6817	0.5700	0.4612
WEEDING (C)	1	0.3750	0.3750	0.0100	0.9084
CUTTING (D)	1	500.5070	500.5070	18.3200	0.0008
B*C	1	18.7267	18.7267	0.6900	0.4216
B*D	1	1.2150	1.2150	0.0400	0.8360
C*D	1	2.8017	2.8017	0.1000	0.7535
B*C*D	1	1.3067	1.3067	0.0500	0.8300
A*B*C*D	14	382.4790	27.3199		
TOTAL	23	965.0330			

C47: Analysis of variance for ground coverage of *S. hamata* at 1 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	27.0833	13.5417	0.5900	0.5691
FER (B)	1	66.6667	66.6667	2.8900	0.1112
WEEDING (C)	1	16.6667	16.6667	0.7200	0.4096
CUTTING (D)	1	16.6667	16.6667	0.7200	0.4096
B*C	1	66.6667	66.6667	2.8900	0.1112
B*D	1	0.0000	0.0000	0.0000	1.0000
C*D	1	16.6667	16.6667	0.7200	0.4096
B*C*D	1	0.0000	0.0000	0.0000	1.0000
A*B*C*D	14	322.9170	23.0655		
TOTAL	23	533.3330			

C48: Analysis of variance for ground coverage of *S. hamata* at 4 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	33.3333	16.6667	0.0800	0.9196
FER (B)	1	600.0000	600.0000	3.0400	0.1033
WEEDING (C)	1	66.6667	66.6667	0.3400	0.5706
CUTTING (D)	1	266.6670	266.6670	1.3500	0.2648
B*C	1	66.6667	66.6667	0.3400	0.5706
B*D	1	66.6667	66.6667	0.3400	0.5706
C*D	1	66.6667	66.6667	0.3400	0.5706
B*C*D	1	600.0000	600.0000	3.0400	0.1033
A*B*C*D	14	2766.6700	197.6190		
TOTAL	23	4533.3300			

C49: Analysis of variance for ground coverage of *S. hamata* at 6 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	175.0000	87.5000	0.4300	0.6597
FER (B)	1	504.1670	504.1670	2.4700	0.1384
WEEDING (C)	1	150.0000	150.0000	0.7300	0.4058
CUTTING (D)	1	104.1670	104.1670	0.5100	0.4868
B*C	1	37.5000	37.5000	0.1800	0.6748
B*D	1	16.6667	16.6667	0.0800	0.7793
C*D	1	104.1670	104.1670	0.5100	0.4868
B*C*D	1	150.0000	150.0000	0.7300	0.4058
A*B*C*D	14	2858.3300	204.1670		
TOTAL	23	4100.0000			

C50: Analysis of variance for ground coverage of *S. hamata* at 8 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	58.3333	29.1667	0.2300	0.8007
FER (B)	1	104.1670	104.1670	0.8100	0.3844
WEEDING (C)	1	4.1667	4.1667	0.0300	0.8600
CUTTING (D)	1	104.1670	104.1670	0.8100	0.3844
B*C	1	37.5000	37.5000	0.2900	0.5985
B*D	1	4.1667	4.1667	0.0300	0.8600
C*D	1	37.5000	37.5000	0.2900	0.5985
B*C*D	1	37.5000	37.5000	0.2900	0.5985
A*B*C*D	14	1808.3300	129.1670		
TOTAL	23	2195.8300			

C51: Analysis of variance for ground coverage of *S. hamata* at 10 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	300.0000	150.0000	1.0000	0.3927
FER (B)	1	704.1670	704.1670	4.6900	0.0480
WEEDING (C)	1	150.0000	150.0000	1.0000	0.3343
CUTTING (D)	1	66.6667	66.6667	0.4400	0.5158
B*C	1	4.1667	4.1667	0.0300	0.8700
B*D	1	104.1670	104.1670	0.6900	0.4186
C*D	1	66.6667	66.6667	0.4400	0.5158
B*C*D	1	104.1670	104.1670	0.6900	0.4186
A*B*C*D	14	2100.0000	150.0000		
TOTAL	23	3600.0000			

C52: Analysis of variance for ground coverage of *S. hamata* at 12 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	233.3330	116.6670	2.3300	0.1335
FER (B)	1	416.6670	416.6670	8.3300	0.0120
WEEDING (C)	1	0.0000	0.0000	0.0000	1.0000
CUTTING (D)	1	16.6667	16.6667	0.3300	0.5729
B*C	1	16.6667	16.6667	0.3300	0.5729
B*D	1	66.6667	66.6667	1.3300	0.2675
C*D	1	16.6667	16.6667	0.3300	0.5729
B*C*D	1	66.6667	66.6667	1.3300	0.2675
A*B*C*D	14	700.0000	50.0000		
TOTAL	23	1533.3300			

C53: Analysis of variance for ground coverage of *S. hamata* at 15 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	43.7500	21.8750	0.1900	0.8317
FER (B)	1	937.5000	937.5000	8.0100	0.0134
WEEDING (C)	1	104.1670	104.1670	0.8900	0.3616
CUTTING (D)	1	266.6670	266.6670	2.2800	0.1535
B*C	1	204.1670	204.1670	1.7400	0.2079
B*D	1	0.0000	0.0000	0.0000	1.0000
C*D	1	150.0000	150.0000	1.2800	0.2768
B*C*D	1	66.6667	66.6667	0.5700	0.4631
A*B*C*D	14	1639.5800	117.1130		
TOTAL	23	3412.5000			

C54: Analysis of variance for ground coverage of *S. hamata* at 17 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	39.5833	19.7917	0.4900	0.6202
FER (B)	1	234.3750	234.3750	5.8600	0.0297
WEEDING (C)	1	1.0417	1.0417	0.0300	0.8742
CUTTING (D)	1	51.0417	51.0417	1.2800	0.2778
B*C	1	51.0417	51.0417	1.2800	0.2778
B*D	1	1.0417	1.0417	0.0300	0.8742
C*D	1	26.0417	26.0417	0.6500	0.4334
B*C*D	1	84.3750	84.3750	2.1100	0.1686
A*B*C*D	14	560.4170	40.0298		
TOTAL	23	1048.9600			

C55: Analysis of variance for ground coverage of *S. hamata* at 19 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	67.0000	33.5000	1.0300	0.3828
FER (B)	1	192.6670	192.6670	5.9200	0.0290
WEEDING (C)	1	0.1667	0.1667	0.0100	0.9440
CUTTING (D)	1	1633.5000	1633.5000	50.1900	0.0000
B*C	1	192.6670	192.6670	5.9200	0.0290
B*D	1	2.6667	2.6667	0.0800	0.7789
C*D	1	13.5000	13.5000	0.4100	0.5300
B*C*D	1	2.6667	2.6667	0.0800	0.7789
A*B*C*D	14	455.6670	32.5476		
TOTAL	23	2560.5000			

C56: Analysis of variance for ground coverage of *S. hamata* at 21 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	18.0833	9.0417	0.4100	0.6735
FER (B)	1	222.0420	222.0420	9.9900	0.0069
WEEDING (C)	1	0.3750	0.3750	0.0200	0.8985
CUTTING (D)	1	126.0420	126.0420	5.6700	0.0320
B*C	1	63.3750	63.3750	2.8500	0.1135
B*D	1	30.3750	30.3750	1.3700	0.2620
C*D	1	0.3750	0.3750	0.0200	0.8985
B*C*D	1	0.0417	0.0417	0.0000	0.9661
A*B*C*D	14	311.2500	22.2321		
TOTAL	23	771.9580			

C57: Analysis of variance for ground coverage of *S. hamata* at 23 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	10.3333	5.1667	0.1700	0.8465
FER (B)	1	176.0420	176.0420	5.7400	0.0311
WEEDING (C)	1	9.3750	9.3750	0.3100	0.5889
CUTTING (D)	1	51.0417	51.0417	1.6700	0.2177
B*C	1	30.3750	30.3750	0.9900	0.3363
B*D	1	9.3750	9.3750	0.3100	0.5889
C*D	1	9.3750	9.3750	0.3100	0.5889
B*C*D	1	2.0417	2.0417	0.0700	0.8001
A*B*C*D	14	429.0000	30.6429		
TOTAL	23	726.9580			

C58: Analysis of variance for ground coverage of *S. hamata* at 25 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	22.7500	11.3750	0.5200	0.6078
FER (B)	1	22.0417	22.0417	1.0000	0.3343
WEEDING (C)	1	7.0417	7.0417	0.3200	0.5809
CUTTING (D)	1	92.0417	92.0417	4.1800	0.0603
B*C	1	9.3750	9.3750	0.4300	0.5249
B*D	1	1.0417	1.0417	0.0500	0.8310
C*D	1	3.3750	3.3750	0.1500	0.7015
B*C*D	1	0.3750	0.3750	0.0200	0.8981
A*B*C*D	14	308.5830	22.0417		
TOTAL	23	466.6250			

C59: Analysis of variance for dry weight of *S. hamata* at 1 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	116.8460	58.4229	0.1000	0.9067
FER (B)	1	591.2320	591.2320	1.0000	0.3347
WEEDING (C)	1	32.8536	32.8536	0.0600	0.8172
CUTTING (D)	1	73.7803	73.7803	0.1200	0.7294
B*C	1	121.5000	121.5000	0.2100	0.6575
B*D	1	765.2360	765.2360	1.2900	0.2748
C*D	1	483.1240	483.1240	0.8200	0.3817
B*C*D	1	1,418.0400	1,418.0400	2.3900	0.1441
A*B*C*D	14	8,292.1100	592.2940		
TOTAL	23	11,894.7000			

C60: Analysis of variance for dry weight of *S. hamata* at 17 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	54,864.5000	27,432.3000	1.7600	0.2087
FER (B)	1	109,966.0000	109,966.0000	7.0400	0.0189
WEEDING (C)	1	1,134.9300	1,134.9300	0.0700	0.7914
CUTTING (D)	1	9,229.2500	9,229.2500	0.5900	0.4549
B*C	1	1,770.9100	1,770.9100	0.1100	0.7413
B*D	1	1,565.5800	1,565.5800	0.1000	0.7562
C*D	1	11,159.5000	11,159.5000	0.7100	0.4122
B*C*D	1	20,862.4000	20,862.4000	1.3400	0.2672
A*B*C*D	14	218,698.0000	15,621.3000		
TOTAL	23	429,252.0000			

C61: Analysis of variance for dry weight of *S. hamata* at 25 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	107,085.0000	53,542.3000	1.1600	0.3428
FER (B)	1	8,665.5200	8,665.5200	0.1900	0.6718
WEEDING (C)	1	6,456.3500	6,456.3500	0.1400	0.7144
CUTTING (D)	1	206.7410	206.7410	-	0.9477
B*C	1	7,354.2000	7,354.2000	0.1600	0.6962
B*D	1	50,898.1000	50,898.1000	1.1000	0.3121
C*D	1	5,386.8100	5,386.8100	0.1200	0.7381
B*C*D	1	101,218.0000	101,218.0000	2.1900	0.1613
A*B*C*D	14	647,991.0000	46,285.0000		
TOTAL	23	935,261.0000			

C62: Analysis of variance for neutral detergent fiber (NDF) of *S. hamata* at 17 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	4.2629	2.1315	0.2000	0.8252
FER (B)	1	3.5208	3.5208	0.3300	0.5878
WEEDING (C)	1	0.0533	0.0533	0.0000	0.9461
B*C	1	1.0800	1.0800	0.1000	0.7620
A*B*C	6	64.4671	10.7445		
TOTAL	11	73.3842			

C63: Analysis of variance for acid-detergent fiber (ADF) of *S. hamata* at 17 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	1.3931	0.6966	0.2100	0.8167
FER (B)	1	0.0014	0.0014	0.0000	0.9842
WEEDING (C)	1	2.7170	2.7170	0.8200	0.4008
B*C	1	1.9602	1.9602	0.5900	0.4717
A*B*C	6	19.9466	3.3244		
TOTAL	11	26.0183			

C64: Analysis of variance for crude protein (CP) of *S. hamata* at 17 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	7.0476	3.5238	1.0000	0.4230
FER (B)	1	7.6002	7.6002	2.1500	0.1930
WEEDING (C)	1	0.2791	0.2791	0.0800	0.7882
B*C	1	3.0100	3.0100	0.8500	0.3918
A*B*C	6	21.2184	3.5364		
TOTAL	11	39.1553			

C65: Analysis of variance for dry matter (DM) of *S. hamata* at 17 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	90.9394	45.4697	0.9100	0.4529
FER (B)	1	85.3333	85.3333	1.7000	0.2399
WEEDING (C)	1	66.9296	66.9296	1.3300	0.2919
B*C	1	31.4280	31.4280	0.6300	0.4587
A*B*C	6	300.9310	50.1552		
TOTAL	11	575.5610			

C66: Analysis of variance for neutral detergent fiber (NDF) of *S. hamata* at 25 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	1.0544	0.5272	0.1100	0.8951
FER (B)	1	0.2301	0.2301	0.0500	0.8284
WEEDING (C)	1	2.4384	2.4384	0.5200	0.4841
CUTTING (D)	1	89.1276	89.1276	18.8800	0.0007
B*C	1	0.4401	0.4401	0.0900	0.7646
B*D	1	3.5651	3.5651	0.7600	0.3995
C*D	1	0.0176	0.0176	-	0.9522
B*C*D	1	13.7259	13.7259	2.9100	0.1102
A*B*C*D	14	66.0873	4.7205		
TOTAL	23	176.6870			

C67: Analysis of variance for acid-detergent fiber (ADF) of *S. hamata* at 25 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	1.7130	0.8565	0.2500	0.7822
FER (B)	1	5.5584	5.5584	1.6200	0.2235
WEEDING (C)	1	0.7526	0.7526	0.2200	0.6465
CUTTING (D)	1	40.6901	40.6901	11.8700	0.0039
B*C	1	2.8359	2.8359	0.8300	0.3784
B*D	1	6.6676	6.6676	1.9500	0.1848
C*D	1	1.7334	1.7334	0.5100	0.4886
B*C*D	1	1.2376	1.2376	0.3600	0.5575
A*B*C*D	14	47.9721	3.4266		
TOTAL	23	109.1610			

C68: Analysis of variance for crude protein (CP) of *S. hamata* at 25 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	2.0843	1.0422	1.2500	0.3160
FER (B)	1	0.0748	0.0748	0.0900	0.7687
WEEDING (C)	1	0.7562	0.7562	0.9100	0.3566
CUTTING (D)	1	9.9846	9.9846	12.0000	0.0038
B*C	1	0.7633	0.7633	0.9200	0.3545
B*D	1	0.0434	0.0434	0.0500	0.8228
C*D	1	0.1634	0.1634	0.2000	0.6645
B*C*D	1	0.0171	0.0171	0.0200	0.8882
A*B*C*D	14	11.6500	0.8321		
TOTAL	23	25.5369			

C69: Analysis of variance for dry matter (DM) of *S. hamata* at 25 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	15.6223	7.8111	1.7400	0.2117
FER (B)	1	0.3174	0.3174	0.0700	0.7943
WEEDING (C)	1	4.6464	4.6464	1.0300	0.3265
CUTTING (D)	1	40.5080	40.5080	9.0100	0.0095
B*C	1	0.3902	0.3902	0.0900	0.7726
B*D	1	0.7776	0.7776	0.1700	0.6837
C*D	1	3.2267	3.2267	0.7200	0.4110
B*C*D	1	2.5220	2.5220	0.5600	0.4662
A*B*C*D	14	62.9095	4.4935		
TOTAL	23	130.9200			

C70: Analysis of variance for weed density at mid-May

SOURCE	DF	SS	MS	F	P
REP (A)	2	52.0000	26.0000	0.0800	0.9215
FER (B)	1	66.6667	66.6667	0.2100	0.6532
WEEDING (C)	1	266.6670	266.6670	0.8400	0.3741
CUTTING (D)	1	770.6670	770.6670	2.4400	0.1408
B*C	1	42.6667	42.6667	0.1300	0.7189
B*D	1	130.6670	130.6670	0.4100	0.5308
C*D	1	266.6670	266.6670	0.8400	0.3741
B*C*D	1	864.0000	864.0000	2.7300	0.1206
A*B*C*D	14	4,428.0000	316.2860		
TOTAL	23	6,888.0000			

C71: Analysis of variance for weed density in May

SOURCE	DF	SS	MS	F	P
REP (A)	2	3,369.3300	1,684.6700	1.3500	0.2898
FER (B)	1	3,266.6700	3,266.6700	2.6300	0.1274
WEEDING (C)	1	522.6670	522.6670	0.4200	0.5273
CUTTING (D)	1	3,266.6700	3,266.6700	2.6300	0.1274
B*C	1	522.6670	522.6670	0.4200	0.5273
B*D	1	66.6667	66.6667	0.0500	0.8202
C*D	1	170.6670	170.6670	0.1400	0.7166
B*C*D	1	1,290.6700	1,290.6700	1.0400	0.3256
A*B*C*D	14	17,409.3000	1,243.5200		
TOTAL	23	29,885.3000			

C72: Analysis of variance for weed density in June

SOURCE	DF	SS	MS	F	P
REP (A)	2	389.3330	194.6670	1.1700	0.3391
FER (B)	1	1,290.6700	1,290.6700	7.7500	0.0146
WEEDING (C)	1	24.0000	24.0000	0.1400	0.7099
CUTTING (D)	1	266.6670	266.6670	1.6000	0.2263
B*C	1	42.6667	42.6667	0.2600	0.6206
B*D	1	66.6667	66.6667	0.4000	0.5371
C*D	1	96.0000	96.0000	0.5800	0.4602
B*C*D	1	450.6670	450.6670	2.7100	0.1222
A*B*C*D	14	2,330.6700	166.4760		
TOTAL	23	4,957.3300			

C73: Analysis of variance for weed density in July

SOURCE	DF	SS	MS	F	P
REP (A)	2	1,612.0000	806.0000	2.0800	0.1620
FER (B)	1	2,320.6700	2,320.6700	5.9900	0.0282
WEEDING (C)	1	416.6670	416.6670	1.0700	0.3175
CUTTING (D)	1	294.0000	294.0000	0.7600	0.3986
B*C	1	16.6667	16.6667	0.0400	0.8387
B*D	1	416.6670	416.6670	1.0700	0.3175
C*D	1	32.6667	32.6667	0.0800	0.7759
B*C*D	1	112.6670	112.6670	0.2900	0.5983
A*B*C*D	14	5,428.0000	387.7140		
TOTAL	23	10,650.0000			

C74: Analysis of variance for weed density in August

SOURCE	DF	SS	MS	F	P
REP (A)	2	1,164.0000	582.0000	2.3500	0.1317
FER (B)	1	770.6670	770.6670	3.1100	0.0994
WEEDING (C)	1	24.0000	24.0000	0.1000	0.7601
CUTTING (D)	1	42.6667	42.6667	0.1700	0.6843
B*C	1	24.0000	24.0000	0.1000	0.7601
B*D	1	96.0000	96.0000	0.3900	0.5434
C*D	1	10.6667	10.6667	0.0400	0.8385
B*C*D	1	266.6670	266.6670	1.0800	0.3169
A*B*C*D	14	3,465.3300	247.5240		
TOTAL	23	5,864.0000			

C75: Analysis of variance for weed density in September

SOURCE	DF	SS	MS	F	P
REP (A)	2	10,108.0000	5,054.0000	5.4700	0.0176
FER (B)	1	9,600.0000	9,600.0000	10.3800	0.0061
WEEDING (C)	1	682.6670	682.6670	0.7400	0.4046
CUTTING (D)	1	2,400.0000	2,400.0000	2.6000	0.1294
B*C	1	2,090.6700	2,090.6700	2.2600	0.1549
B*D	1	42.6667	42.6667	0.0500	0.8330
C*D	1	522.6670	522.6670	0.5700	0.4646
B*C*D	1	10.6667	10.6667	0.0100	0.9160
A*B*C*D	14	12,942.7000	924.4760		
TOTAL	23	38,400.0000			

C76: Analysis of variance for weed density in October

SOURCE	DF	SS	MS	F	P
REP (A)	2	1,977.3300	988.6670	1.1900	0.3326
FER (B)	1	5,046.0000	5,046.0000	6.0800	0.0272
WEEDING (C)	1	486.0000	486.0000	0.5900	0.4567
CUTTING (D)	1	9,126.0000	9,126.0000	11.0000	0.0051
B*C	1	240.6670	240.6670	0.2900	0.5986
B*D	1	6,800.6700	6,800.6700	8.2000	0.0125
C*D	1	726.0000	726.0000	0.8800	0.3654
B*C*D	1	5,280.6700	5,280.6700	6.3700	0.0243
A*B*C*D	14	11,612.0000	829.4290		
TOTAL	23	41,295.3000			

C77: Analysis of variance for height of predominant weed species (*Richardia brasiliensis*) at 1 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	150.6260	75.3129	3.9900	0.0427
FER (B)	1	23.8004	23.8004	1.2600	0.2806
WEEDING (C)	1	1.3538	1.3538	0.0700	0.7929
CUTTING (D)	1	36.7538	36.7538	1.9400	0.1849
B*C	1	3.1538	3.1538	0.1700	0.6891
B*D	1	3.6038	3.6038	0.1900	0.6690
C*D	1	0.0338	0.0338	-	0.9669
B*C*D	1	0.3504	0.3504	0.0200	0.8936
A*B*C*D	14	264.5540	18.8967		
TOTAL	23	484.2300			

C78: Analysis of variance for height of predominant weed species (*Richardia brasiliensis*) at 4 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	104.5560	52.2779	9.9600	0.0020
FER (B)	1	0.0017	0.0017	-	0.9860
WEEDING (C)	1	6.8267	6.8267	1.3000	0.2732
CUTTING (D)	1	40.5600	40.5600	7.7300	0.0147
B*C	1	2.9400	2.9400	0.5600	0.4665
B*D	1	4.1667	4.1667	0.7900	0.3879
C*D	1	1.6017	1.6017	0.3100	0.5893
B*C*D	1	2.0417	2.0417	0.3900	0.5428
A*B*C*D	14	73.4642	5.2474		
TOTAL	23	236.1580			

C79: Analysis of variance for height of predominant weed species (*Richardia brasiliensis*) at 6 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	60.3308	30.1654	3.4800	0.0591
FER (B)	1	11.6204	11.6204	1.3400	0.2660
WEEDING (C)	1	9.2504	9.2504	1.0700	0.3188
CUTTING (D)	1	36.7537	36.7537	4.2500	0.0585
B*C	1	0.0038	0.0038	-	0.9837
B*D	1	8.5204	8.5204	0.9800	0.3380
C*D	1	0.7704	0.7704	0.0900	0.7699
B*C*D	1	0.0704	0.0704	0.0100	0.9294
A*B*C*D	14	121.2090	8.6578		
TOTAL	23	248.5300			

C80: Analysis of variance for height of predominant weed species (*Richardia brasiliensis*) at 8 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	0.8633	0.4317	0.0900	0.9169
FER (B)	1	7.7067	7.7067	1.5600	0.2324
WEEDING (C)	1	0.4267	0.4267	0.0900	0.7733
CUTTING (D)	1	39.5267	39.5267	7.9900	0.0134
B*C	1	13.5000	13.5000	2.7300	0.1208
B*D	1	6.0000	6.0000	1.2100	0.2893
C*D	1	1.3067	1.3067	0.2600	0.6153
B*C*D	1	7.2600	7.2600	1.4700	0.2457
A*B*C*D	14	69.2433	4.9460		
TOTAL	23	145.8330			

C81: Analysis of variance for height of predominant weed species (*Richardia brasiliensis*) at 10 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	9.3700	4.6850	0.2400	0.7900
FER (B)	1	60.1667	60.1667	3.0800	0.1012
WEEDING (C)	1	40.5600	40.5600	2.0800	0.1716
CUTTING (D)	1	3.2267	3.2267	0.1700	0.6906
B*C	1	29.9267	29.9267	1.5300	0.2362
B*D	1	73.5000	73.5000	3.7600	0.0729
C*D	1	8.6400	8.6400	0.4400	0.5169
B*C*D	1	16.0067	16.0067	0.8200	0.3807
A*B*C*D	14	273.5630	19.5402		
TOTAL	23	514.9600			

C82: Analysis of variance for height of predominant weed species (*Richardia brasiliensis*) at 12 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	5.4700	2.7350	0.1700	0.8455
FER (B)	1	47.6017	47.6017	2.9600	0.1076
WEEDING (C)	1	11.4817	11.4817	0.7100	0.4127
CUTTING (D)	1	7.9350	7.9350	0.4900	0.4942
B*C	1	26.0417	26.0417	1.6200	0.2243
B*D	1	44.2817	44.2817	2.7500	0.1195
C*D	1	0.6017	0.6017	0.0400	0.8495
B*C*D	1	13.8017	13.8017	0.8600	0.3703
A*B*C*D	14	225.4900	16.1064		
TOTAL	23	382.7050			

C83: Analysis of variance for height of predominant weed species (*Richardia brasiliensis*) at 15 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	12.1600	6.0800	0.4400	0.6546
FER (B)	1	54.6017	54.6017	3.9200	0.0676
WEEDING (C)	1	72.8017	72.8017	5.2300	0.0383
CUTTING (D)	1	23.6017	23.6017	1.7000	0.2139
B*C	1	23.6017	23.6017	1.7000	0.2139
B*D	1	13.8017	13.8017	0.9900	0.3363
C*D	1	23.6017	23.6017	1.7000	0.2139
B*C*D	1	16.3350	16.3350	1.1700	0.2970
A*B*C*D	14	194.8800	13.9200		
TOTAL	23	435.3850			

C84: Analysis of variance for height of predominant weed species (*Richardia brasiliensis*) at 17 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	27.7158	13.8579	0.4800	0.6274
FER (B)	1	11.7600	11.7600	0.4100	0.5328
WEEDING (C)	1	20.9067	20.9067	0.7300	0.4081
CUTTING (D)	1	13.5000	13.5000	0.4700	0.5043
B*C	1	14.4150	14.4150	0.5000	0.4905
B*D	1	0.0417	0.0417	0.0000	0.9702
C*D	1	28.6017	28.6017	0.9900	0.3355
B*C*D	1	43.7400	43.7400	1.5200	0.2377
A*B*C*D	14	402.4380	28.7455		
TOTAL	23	563.1180			

C85: Analysis of variance for height of predominant weed species (*Richardia brasiliensis*) at 19 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	11.8308	5.9154	0.6800	0.5250
FER (B)	1	1.9267	1.9267	0.2200	0.6464
WEEDING (C)	1	2.8017	2.8017	0.3200	0.5807
CUTTING (D)	1	1,513.6800	1,513.6800	172.7300	-
B*C	1	2.2817	2.2817	0.2600	0.6178
B*D	1	10.4017	10.4017	1.1900	0.2943
C*D	1	0.0600	0.0600	0.0100	0.9352
B*C*D	1	17.3400	17.3400	1.9800	0.1813
A*B*C*D	14	122.6890	8.7635		
TOTAL	23	1,683.0100			

C86: Analysis of variance for height of predominant weed species (*Richardia brasiliensis*) at 21 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	11.2225	5.6113	0.2400	0.7901
FER (B)	1	0.0338	0.0338	-	0.9703
WEEDING (C)	1	17.1704	17.1704	0.7300	0.4063
CUTTING (D)	1	1,917.0900	1,917.0900	81.8600	-
B*C	1	59.8504	59.8504	2.5600	0.1322
B*D	1	3.7604	3.7604	0.1600	0.6947
C*D	1	11.9004	11.9004	0.5100	0.4877
B*C*D	1	0.2204	0.2204	0.0100	0.9241
A*B*C*D	14	327.8640	23.4189		
TOTAL	23	2,349.1200			

C87: Analysis of variance for height of predominant weed species (*Richardia brasiliensis*) at 23 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	44.3858	22.1929	0.4900	0.6247
FER (B)	1	3.6817	3.6817	0.0800	0.7805
WEEDING (C)	1	0.8817	0.8817	0.0200	0.8914
CUTTING (D)	1	1,410.6700	1,410.6700	30.9300	0.0001
B*C	1	45.9267	45.9267	1.0100	0.3326
B*D	1	32.2017	32.2017	0.7100	0.4149
C*D	1	22.0417	22.0417	0.4800	0.4983
B*C*D	1	19.4400	19.4400	0.4300	0.5244
A*B*C*D	14	638.4680	45.6048		
TOTAL	23	2,217.6900			

C88: Analysis of variance for height of predominant weed species (*Richardia brasiliensis*) at 25 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	21.5208	10.7604	0.4300	0.6568
FER (B)	1	88.1667	88.1667	3.5500	0.0805
WEEDING (C)	1	3.0817	3.0817	0.1200	0.7299
CUTTING (D)	1	184.8150	184.8150	7.4400	0.0163
B*C	1	14.1067	14.1067	0.5700	0.4635
B*D	1	11.7600	11.7600	0.4700	0.5026
C*D	1	5.0417	5.0417	0.2000	0.6592
B*C*D	1	12.9067	12.9067	0.5200	0.4828
A*B*C*D	14	347.6790	24.8342		
TOTAL	23	689.0780			

C89: Analysis of variance for ground coverage of broadleaved and grass weeds at 1 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	127.0830	63.5417	1.7000	0.2181
FER (B)	1	51.0417	51.0417	1.3700	0.2619
WEEDING (C)	1	9.3750	9.3750	0.2500	0.6242
CUTTING (D)	1	84.3750	84.3750	2.2600	0.1551
B*C	1	1.0417	1.0417	0.0300	0.8698
B*D	1	1.0417	1.0417	0.0300	0.8698
C*D	1	26.0417	26.0417	0.7000	0.4177
B*C*D	1	26.0417	26.0417	0.7000	0.4177
A*B*C*D	14	522.9170	37.3512		
TOTAL	23	848.9580			

C90: Analysis of variance for ground coverage of broadleaved and grass weeds at 4 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	52.0833	26.0417	0.5800	0.5741
FER (B)	1	234.3750	234.3750	5.2000	0.0388
WEEDING (C)	1	9.3750	9.3750	0.2100	0.6554
CUTTING (D)	1	9.3750	9.3750	0.2100	0.6554
B*C	1	9.3750	9.3750	0.2100	0.6554
B*D	1	26.0417	26.0417	0.5800	0.4599
C*D	1	51.0417	51.0417	1.1300	0.3054
B*C*D	1	126.0420	126.0420	2.8000	0.1167
A*B*C*D	14	631.2500	45.0893		
TOTAL	23	1148.9600			

C91: Analysis of variance for ground coverage of broadleaved and grass weeds at 6 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	58.3333	29.1667	0.6500	0.5355
FER (B)	1	416.6670	416.6670	9.3300	0.0086
WEEDING (C)	1	37.5000	37.5000	0.8400	0.3749
CUTTING (D)	1	37.5000	37.5000	0.8400	0.3749
B*C	1	37.5000	37.5000	0.8400	0.3749
B*D	1	4.1667	4.1667	0.0900	0.7645
C*D	1	16.6667	16.6667	0.3700	0.5510
B*C*D	1	0.0000	0.0000	0.0000	1.0000
A*B*C*D	14	625.0000	44.6429		
TOTAL	23	1233.3300			

C92: Analysis of variance for ground coverage of broadleaved and grass weeds at 8 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	25.0000	12.5000	0.2000	0.8210
FER (B)	1	16.6667	16.6667	0.2700	0.6136
WEEDING (C)	1	16.6667	16.6667	0.2700	0.6136
CUTTING (D)	1	104.1670	104.1670	1.6700	0.2176
B*C	1	0.0000	0.0000	0.0000	1.0000
B*D	1	37.5000	37.5000	0.6000	0.4515
C*D	1	37.5000	37.5000	0.6000	0.4515
B*C*D	1	37.5000	37.5000	0.6000	0.4515
A*B*C*D	14	875.0000	62.5000		
TOTAL	23	1150.0000			

C93: Analysis of variance for ground coverage of broadleaved and grass weeds at 10 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	14.5833	7.2917	0.4000	0.6746
FER (B)	1	16.6667	16.6667	0.9300	0.3523
WEEDING (C)	1	104.1670	104.1670	5.7900	0.0306
CUTTING (D)	1	16.6667	16.6667	0.9300	0.3523
B*C	1	4.1667	4.1667	0.2300	0.6379
B*D	1	66.6667	66.6667	3.7000	0.0749
C*D	1	4.1667	4.1667	0.2300	0.6379
B*C*D	1	4.1667	4.1667	0.2300	0.6379
A*B*C*D	14	252.0830	18.0060		
TOTAL	23	483.3330			

C94: Analysis of variance for ground coverage of broadleaved and grass weeds at 12 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	25.0000	12.5000	1.9100	0.1849
FER (B)	1	1.0417	1.0417	0.1600	0.6960
WEEDING (C)	1	9.3750	9.3750	1.4300	0.2513
CUTTING (D)	1	1.0417	1.0417	0.1600	0.6960
B*C	1	1.0417	1.0417	0.1600	0.6960
B*D	1	9.3750	9.3750	1.4300	0.2513
C*D	1	1.0417	1.0417	0.1600	0.6960
B*C*D	1	1.0417	1.0417	0.1600	0.6960
A*B*C*D	14	91.6667	6.5476		
TOTAL	23	140.6250			

C95: Analysis of variance for ground coverage of broadleaved and grass weeds at 15 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	2.0833	1.0417	0.0400	0.9609
FER (B)	1	204.1670	204.1670	7.8400	0.0142
WEEDING (C)	1	37.5000	37.5000	1.4400	0.2501
CUTTING (D)	1	66.6667	66.6667	2.5600	0.1319
B*C	1	37.5000	37.5000	1.4400	0.2501
B*D	1	0.0000	0.0000	0.0000	1.0000
C*D	1	16.6667	16.6667	0.6400	0.4371
B*C*D	1	16.6667	16.6667	0.6400	0.4371
A*B*C*D	14	364.5830	26.0417		
TOTAL	23	745.8330			

C96: Analysis of variance for ground coverage of broadleaved and grass weeds at 17 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	8.3333	4.1667	0.1500	0.8630
FER (B)	1	84.3750	84.3750	3.0200	0.1044
WEEDING (C)	1	51.0417	51.0417	1.8200	0.1982
CUTTING (D)	1	1.0417	1.0417	0.0400	0.8498
B*C	1	26.0417	26.0417	0.9300	0.3510
B*D	1	9.3750	9.3750	0.3400	0.5719
C*D	1	51.0417	51.0417	1.8200	0.1982
B*C*D	1	51.0417	51.0417	1.8200	0.1982
A*B*C*D	14	391.6670	27.9762		
TOTAL	23	673.9580			

C97: Analysis of variance for ground coverage of broadleaved and grass weeds at 19 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	181.0000	90.5000	3.0000	0.0824
FER (B)	1	234.3750	234.3750	7.7700	0.0145
WEEDING (C)	1	15.0417	15.0417	0.5000	0.4917
CUTTING (D)	1	15.0417	15.0417	0.5000	0.4917
B*C	1	155.0420	155.0420	5.1400	0.0398
B*D	1	0.0417	0.0417	0.0000	0.9709
C*D	1	9.3750	9.3750	0.3100	0.5860
B*C*D	1	9.3750	9.3750	0.3100	0.5860
A*B*C*D	14	422.3330	30.1667		
TOTAL	23	1041.63			

C98: Analysis of variance for ground coverage of broadleaved and grass weeds at 21 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	1.0000	0.5000	0.0400	0.9578
FER (B)	1	92.0417	92.0417	7.9700	0.0135
WEEDING (C)	1	5.0417	5.0417	0.4400	0.5195
CUTTING (D)	1	5.0417	5.0417	0.4400	0.5195
B*C	1	22.0417	22.0417	1.9100	0.1888
B*D	1	18.3750	18.3750	1.5900	0.2278
C*D	1	0.3750	0.3750	0.0300	0.8596
B*C*D	1	1.0417	1.0417	0.0900	0.7683
A*B*C*D	14	161.6670	11.5476		
TOTAL	23	306.6250			

C99: Analysis of variance for ground coverage of broadleaved and grass weeds at 23 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	10.5833	5.2917	0.2900	0.7559
FER (B)	1	96.0000	96.0000	5.1800	0.0391
WEEDING (C)	1	20.1667	20.1667	1.0900	0.3145
CUTTING (D)	1	13.5000	13.5000	0.7300	0.4077
B*C	1	37.5000	37.5000	2.0200	0.1768
B*D	1	0.1667	0.1667	0.0100	0.9258
C*D	1	6.0000	6.0000	0.3200	0.5783
B*C*D	1	0.0000	0.0000	0.0000	1.0000
A*B*C*D	14	259.4170	18.5298		
TOTAL	23	443.3330			

C100: Analysis of variance for ground coverage of broadleaved and grass weeds at 25 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	25.3333	12.6667	2.2000	0.1478
FER (B)	1	22.0417	22.0417	3.8300	0.0707
WEEDING (C)	1	2.0417	2.0417	0.3500	0.5612
CUTTING (D)	1	70.0417	70.0417	12.1600	0.0036
B*C	1	2.0417	2.0417	0.3500	0.5612
B*D	1	2.0417	2.0417	0.3500	0.5612
C*D	1	0.3750	0.3750	0.0700	0.8023
B*C*D	1	0.3750	0.3750	0.0700	0.8023
A*B*C*D	14	80.6667	5.7619		
TOTAL	23	204.9580			

C101: Analysis of variance for dry weight of broadleaved and grass weeds at 1 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	601.6430	300.8220	0.2800	0.7570
FER (B)	1	3,803.1900	3,803.1900	3.5900	0.0790
WEEDING (C)	1	2,032.1000	2,032.1000	1.9200	0.1877
CUTTING (D)	1	1,985.2600	1,985.2600	1.8700	0.1926
B*C	1	1,061.8700	1,061.8700	1.0000	0.3337
B*D	1	101.0240	101.0240	0.1000	0.7620
C*D	1	112.1470	112.1470	0.1100	0.7497
B*C*D	1	1,801.9700	1,801.9700	1.7000	0.2132
A*B*C*D	14	14,830.3000	1,059.3100		
TOTAL	23	26,329.5000			

C102: Analysis of variance for dry weight of broadleaved and grass weeds at 17 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	3,197.5700	1,598.7800	0.6100	0.5569
FER (B)	1	5,634.0800	5,634.0800	2.1500	0.1645
WEEDING (C)	1	42.1350	42.1350	0.0200	0.9009
CUTTING (D)	1	593.2190	593.2190	0.2300	0.6415
B*C	1	5.4150	5.4150	-	0.9644
B*D	1	332.4190	332.4190	0.1300	0.7269
C*D	1	741.4820	741.4820	0.2800	0.6030
B*C*D	1	3,643.7600	3,643.7600	1.3900	0.2578
A*B*C*D	14	36,664.7000	2,618.9100		
TOTAL	23	50,854.8000			

C103: Analysis of variance for dry weight of broadleaved and grass weeds at 25 WAE

SOURCE	DF	SS	MS	F	P
REP (A)	2	9,823.8400	4,911.9200	2.3700	0.1296
FER (B)	1	3,216.2300	3,216.2300	1.5500	0.2330
WEEDING (C)	1	3,043.1300	3,043.1300	1.4700	0.2454
CUTTING (D)	1	13,816.8000	13,816.8000	6.6800	0.0217
B*C	1	3,918.0900	3,918.0900	1.8900	0.1905
B*D	1	56.7030	56.7030	0.0300	0.8709
C*D	1	1,629.7100	1,629.7100	0.7900	0.3899
B*C*D	1	6,105.3400	6,105.3400	2.9500	0.1079
A*B*C*D	14	28,978.1000	2,069.8600		
TOTAL	23	70,587.9000			

CIRRICULUM VITAE

Name: Mr. Sanan Thammakhantha

Date of birth: January 24, 1974

Place of birth: Chiang Rai province, Thailand

Educational background:

1989-1992 Secondary School
 Samakkeewittayakom, Chiang Rai, Thailand

1992-1996 B.S. Agriculture (Horticulture)
 Chiang Mai University, Chiang Mai, Thailand

1998-2001 M.S. Agriculture (Agricultural Systems)
 Chiang Mai University, Chiang Mai, Thailand

Work experiences:

1996-1997 The officer of policy and planning analysis
 The office of Agricultural Economic, Zone 13 Chiang Mai

1997-1998 Accountant and Computer supporting systems
 Siammariposa Co.Ltd.,
 (Import and export exotic tropical plants and flowers)

Scholarship for Ford Foundation

M.S. study:

Address: 67 Moo 7, Tombon Pakodum, Mae Laos district,
 Chiang Rai Province, Thailand 57250

Tel: 6653-666523

Email: webmaster@sanan.f2s.com,

webmaster@aggie29.f2s.com

aggie29cmu@yahoo.com

Homepages: www.sanan.f2s.com, www.aggie29.f2s.com

www.thai.to/aggie29, www.siamlinks.f2s.com