

Table 23a. Effect of tillage and weed control on maize yield and crop performance (Ikenne, 1980).

Treatment	Stand count ($\times 10^3$ pl/ha)	Lodging %	Grain yield t/ha
Plow and harrow	25 a ¹	40 a	1.91 ab
Disc harrow	25 a	37 a	2.06 a
No tillage	18	21	1.81 b
Herbicide	22	33 a	2.03 a
Hand weeding $\times 2$	25 a	34 a	1.99 a
Unweeded check	20	32 a	1.76

¹Means followed by the same letter in the same column are not significantly different at the 5% level of Duncan's New Multiple Range Test.

Table 23b. Effect of tillage and weed control on maize yield and crop performance (Ikenne, 1980).

Tillage practice	Weed Control	Stand count ($\times 10^3$ pl/ha)	Lodging %	Grain yield t/ha
Plow and harrow	Herbicide	26 a ¹	41 a	2.12 a
	Handweeding $\times 2$	27 a	40 a	1.96 abc
	Weedy	22 bc	40 a	1.66 c
Disc harrow	Herbicide	25 ab	34 a	2.20 a
	Handweeding $\times 2$	27 a	39 a	2.08 ab
	Weedy	22 bc	39 a	1.92 abc
No tillage	Herbicide	16 e	22 b	1.78 bc
	Handweeding $\times 2$	20 cd	23 b	1.94 abc
	Weedy	18 de	19 b	1.71 c

¹Means followed by the same letter in the same column are not significantly different at the 5% level of Duncan's New Multiple Range Test.

storage root yield was significantly depressed by tillage (Tables 24a and 24b). However, preemergence herbicides were more effective in conventional than no-tillage cassava. Crop yield was significantly higher in the hand weeded than in the chemically weeded plot under no-

tillage. The hand weed plot under no-tillage compared favorably with the preemergence herbicide treatments under conventional-tillage. This is an indication that good cassava yield is possible under no-tillage conditions provided that weeds are controlled. The best weed control in cassava was obtained when a mixture of metolachlor and fluometuron was used. This yield did not differ significantly from that of the formulated mixture of atrazine and metolachlor, which has previously been shown to be safe for maize/cassava intercrops.

Table 24b. Effect of weed control on weed biomass and cassava root yield in an Alfisol (IITA, 1980)

Weed control	Weed D. Wt. t/ha	Cassava root yield t/ha
Atrazine plus metolachlor	3.18a ¹	19.53 b
Fluometuron plus metolachlor	3.88 a	20.89 b
Diuron plus paraquat	3.97 a	19.58 b
Weed free	0	31.79 a
Unweeded check	3.39 a	12.27 c

¹Means followed by the same letter in the same column are not significantly different at the 5% level of Duncan's New Multiple Range Test.

Small tools development and evaluation

Rolling injection planter. The rolling injection planter was modified to improve its performance in both the conventional and no-tillage systems. First, it was provided with a small metal cover to hold the seed on the metering wheel to prevent uneven distribution of seed. This cover holds the seed in the metering wheel until the seed is just over the opener, and the seed is dropped almost directly on the ground through the opener (Fig. 14). Previously, the cutoff device on the rolling injection planter had a tendency to pinch maize seeds in such a way that the seeds jumped out of the seed hole in the metering wheel. This happened just as the seed had almost completely passed under the cut-off device. Also, the vibration of the machine had a tendency to shake seeds out of the metering wheel prematurely. This

Table 24a. Effect of tillage and weed control on weed biomass and cassava root yield in an Alfisol (IITA, 1980).

Treatment Tillage	Weed control	Weed D. Wt. t/ha	Cassava root yield t/ha
Conventional tillage	Atrazine + metolachlor 3.0 kg/ha	1.85 de ¹	25.08 b
	Fluometuron + metolachlor 2.0 + 2.0 kg/ha	1.94 de	28.62 ab
	Diuron + paraquat 3.0 kg/ha	2.71 bcd	27.27 b
	Weed free —	0 e	35.83 a
	Unweeded check —	2.13 cde	16.43 c
	Mean	1.73	26.65
No tillage	Atrazine + metolachlor 3.0 kg/ha	4.51 abc	13.98 cd
	Fluometuron + metolachlor 2.0 + 2.0 kg/ha	5.81 a	13.17 cd
	Diuron + paraquat 3.0 kg/ha	5.24 ab	11.90 cd
	Weed free —	0 e	27.75 b
	Unweeded check —	4.65 abc	8.10 d
	Mean	4.04	14.98

¹Means followed by the same letter in the same column are not significantly different at the 5% level of Duncan's New Multiple Range Test.