

CHAPTER 4. CROP HUSBANDRY

4.1 CROP SOWING

4.1.4. USING THE AGRIMAL PLANTER

INTRODUCTION

The Agrimal planter is similar to other makes used in several countries in Eastern and Southern Africa (Fig.1). It has two separate hoppers for seed and fertilizer and the drive is provided by a Pitman mechanism working from the rear press wheel. (Other manufacturers in the region sometimes use a chain drive with interchangeable sprockets to vary the seed distribution rate).

A set of different distributor plates are normally provided with the planter which are suitable for maize, beans, millet and upland rice. Two blank plates are also provided which may be drilled specially according to a particular seed type and size.



Fig. 1 The Agrimal planter. The row marker was not fitted for this photograph.

Photo: J.E. Ashburner

ADJUSTING THE DEPTH OF PLANTING

Planting depth depends on the point of attachment of the trek chain to the hake and also the fixing of the runner to the planter frame.

- to obtain a greater depth of planting, attach the trek chain to one of the upper holes on the hake. Fix the runner to the planter frame with the upper hole (as shown attached in Fig.1);

- a shallower planting depth is achieved by attaching the trek chain to one of the lower holes on the hake. Fix the runner to the main frame with the lower hole of the runner.

FITTING THE SEED PLATE AND PACKING RING

The packing ring, on the Agrimal planter, should only be used in conjunction with the thicker plates of 10 mm. It should not be fitted when using the thinner 5 mm seed plates.

Once the correct seed plate has been selected, place the packing ring under the plate, fit the washer and secure the assembly firmly together with the wing nut.

SELECTING THE APPROPRIATE SEED PLATE

The seed plate is selected firstly according to the number of holes. This affects the distance between plants as shown in the table below:

NUMBER OF HOLES IN THE SEED PLATE	EXPECTED DISTANCE BETWEEN PLANTS
4	40 cm
6	30 cm
8	20 cm
12	15 cm

The seed plate is also selected according to the hole size. The objective here is for a single seed to enter each hole without being damaged. It is important that graded seed should be used, where possible, as this will considerably improve the performance of the planter mechanism and reduce seed damage.

With smaller seeds such as millet, one would normally require more than a single seed to be metered through each hole. A trial and error approach is best, rotating the planter wheel and measuring the seed delivery rate. Choose the plate with a hole size giving optimum performance.

RELATIONSHIP BETWEEN ROW SPACING AND PLANTING DISTANCE

The plant population for a particular crop is affected not only by the seed plate chosen but also by the row spacing adopted in the field. The following tables may be useful in deciding between the many choices available - a 10 % seed loss has been allowed for.

PLANTS PER HECTARE	32 000	36 000	40 000	44 000	48 000	55 000
ROW SPACING	DISTANCE BETWEEN PLANTS IN ROW (cm)					
45	63	56	50	45	42	36
60	47	42	37	34	31	27
75	37	33	30	27	25	22
90	31	28	25	22	21	18

PLANTS PER HECTARE	100 000	150 000	200 000	300 000	350 000
ROW SPACING	DISTANCE BETWEEN PLANTS IN ROW (cm)				
45	20	13	9	6	5
60	15	10	6	5	4
75	12	8	5	4	3
90	10	6	4	3	2

SETTING THE OPENING OF THE FERTILIZER DISTRIBUTOR

This is adjusted with the sliding gate and calibration should be made every time the type of fertilizer is changed. Fill the hopper with exactly 1/2 kg of fertilizer and measure the distance worked until this runs out. Adjust the gate until the distance is as indicated in the table:

ROW SPACING	DISTANCE TO EMPTY 1/2 kg OF FERTILIZER FROM HOPPER			
	100 kg/ha	150 kg/ha	200 kg/ha	300 kg/ha
45 cm	111 m	75 m	55 m	37 m
60 cm	83 m	55 m	41 m	28 m
75 cm	67 m	45 m	33 m	22 m
90 cm	56 m	37 m	28 m	19 m

ADJUSTMENT OF THE ROW MARKER

The row marker, if fitted, can be very useful for maintaining parallel rows in the field. This will considerably reduce the risk of crop damage when weeding later with a cultivator. Adjust the arm length to be equal to the row width chosen. The runner of the planter should follow the trace left by the marker.

CHOOSING THE MOST APPROPRIATE YOKE

When working with a pair of animals, it is important to choose a yoke length according to the distance between rows (yoke length is the distance between the centres of attachment of the yoke to the animals). The objective here is to avoid the animals trampling the seed just planted.

Most farmers have three different yokes: one of 90 cm for ploughing, a second one of 135 cm for pulling the cart and a third one of 180 cm for weeding in rows of 90 cm or 1 metre. Choose a yoke according to the following table:

ROW WIDTH	YOKE	COMMENT
45 cm	135 cm "cart" yoke	The inside animal walks <u>between</u> the two rows previously planted
60 cm	180 cm "long" yoke	The inside animal also walks <u>between</u> the two rows previously planted
75 cm	90 cm "plough" yoke	The inside animal walks 30 cm <u>away from</u> the row just planted
90 cm	90 cm "plough" yoke	The inside animal walks 45 cm <u>away from</u> the row just planted

CARE AND MAINTENANCE OF THE AGRIMAL PLANTER

- empty the two hoppers every evening and thoroughly clean the plate, the hoppers and the delivery shoots;
- clean the entire implement and wipe oil over the runner if it is not to be used for a few days;
- **AT THE END OF THE SEASON**, thoroughly clean the planter. Check the condition of the sheet metal of the hopper, the seed plates and all nuts and bolts. Replace worn or damaged parts.
- repaint as necessary and wipe all the parts with an oily rag.