Sugar Research Australia

Information Sheet

IS13097

Calibration of ground-driven granular insecticide applicators for canegrub management:

When *both* driving and driven cogs are changed to achieve the desired application rate

This method works for any row spacing or configuration. Refer to Information Sheet IS13098 for calibrating by changing one cog only.

Procedure

1. Check the current cogs; then determine the current ratio by looking up the table or by calculating as:

   $$\frac{\text{Number of driving teeth}}{\text{Number of driven teeth}}$$

2. Collect and weigh granules over the measured 100 metres.

3. Calculate the ratio needed for your desired application rate.

   Ratio required =

   $$\frac{\text{Current ratio (1) x required rate (g/100 m of row)}}{\text{Existing rate (2) (g/100 m of row)}}$$

4. Look up the closest ratio from the table. There will be a number of combinations of driver/driven cogs that will give the desired ratio. Choose the combination that is most suitable, given the cogs on hand.

5. Fit the cogs and recheck output over 100 m.

Keep this sheet as a record of calibration

Your calibration worksheet

Date of calibration: _____

Product applied: _____

Required application rate: _____ g/100 m of row

1. What is the current ratio of driving to driven cogs?

   Refer to table:

   Or calculate: $\frac{\text{Number of driving teeth}}{\text{Number of driven teeth}}$

   =

   =

2. What is the weight in grams of granules collected over the measured 100 metres?

   =

3. Calculate the ratio needed for your desired application rate:

   $$\frac{\text{Current ratio (1) x required rate (g/100 m of row)}}{\text{Existing rate (2) (g/100 m of row)}}$$

   =

   =

4. Look up the table and choose a combination of cog sizes that match the required ratio.

   Driving: _____ teeth

   Driven: _____ teeth

5. Fit the cogs and recheck output over 100 m.

Ratios from driver/driven (box) combinations

Driver

Driven (Box)

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
6	1	1.17	1.33	1.50	1.67	1.83	2.00	2.17	2.33	2.50	2.67	2.83	3.00	3.17	3.33	3.50	3.67	3.83	4.00	4.17	4.33	4.50	4.67	4.83	5.00
7	0.86	1	1.14	1.29	1.43	1.57	1.71	1.86	2.00	2.14	2.29	2.43	2.57	2.71	2.86	3.00	3.14	3.29	3.43	3.57	3.71	3.86	4.00	4.14	4.29
8	0.75	0.88	1	1.13	1.25	1.38	1.50	1.63	1.75	1.88	2.00	2.13	2.25	2.38	2.50	2.63	2.75	2.88	3.00	3.13	3.25	3.38	3.50	3.63	3.75
9	0.67	0.78	0.89	1	1.11	1.22	1.33	1.44	1.56	1.67	1.78	1.89	2.00	2.11	2.22	2.33	2.44	2.56	2.67	2.78	2.89	3.00	3.11	3.22	3.33
10	0.60	0.70	0.80	0.90	1	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00
11	0.55	0.64	0.73	0.82	0.91	1	1.09	1.18	1.27	1.36	1.45	1.55	1.64	1.73	1.82	1.91	2.00	2.09	2.18	2.27	2.36	2.45	2.55	2.64	2.73
12	0.50	0.58	0.67	0.75	0.83	0.92	1	1.08	1.17	1.25	1.33	1.42	1.50	1.58	1.67	1.75	1.83	1.92	2.00	2.08	2.17	2.25	2.33	2.42	2.50
13	0.46	0.54	0.62	0.69	0.77	0.85	0.92	1	1.08	1.15	1.23	1.31	1.38	1.46	1.54	1.62	1.69	1.77	1.85	1.92	2.00	2.08	2.15	2.23	2.31
14	0.43	0.50	0.57	0.64	0.71	0.79	0.86	0.93	1	1.07	1.14	1.21	1.29	1.36	1.43	1.50	1.57	1.64	1.71	1.79	1.86	1.93	2.00	2.07	2.14
15	0.40	0.47	0.53	0.60	0.67	0.73	0.80	0.87	0.93	1	1.07	1.13	1.20	1.27	1.33	1.40	1.47	1.53	1.60	1.67	1.73	1.80	1.87	1.93	2.00
16	0.38	0.44	0.50	0.56	0.63	0.69	0.75	0.81	0.88	0.94	1	1.06	1.13	1.19	1.25	1.31	1.38	1.44	1.50	1.56	1.63	1.69	1.75	1.81	1.88
17	0.35	0.41	0.47	0.53	0.59	0.65	0.71	0.76	0.82	0.88	0.94	1	1.06	1.12	1.18	1.24	1.29	1.35	1.41	1.47	1.53	1.59	1.65	1.71	1.76
18	0.33	0.39	0.44	0.50	0.56	0.61	0.67	0.72	0.78	0.83	0.89	0.94	1	1.06	1.11	1.17	1.22	1.28	1.33	1.39	1.44	1.50	1.56	1.61	1.67
19	0.32	0.37	0.42	0.47	0.53	0.58	0.63	0.68	0.74	0.79	0.84	0.89	0.95	1	1.05	1.11	1.16	1.21	1.26	1.32	1.37	1.42	1.47	1.53	1.58
20	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1	1.05	1.10	1.15	1.20	1.25	1.30	1.35	1.40	1.45	1.50
21	0.29	0.33	0.38	0.43	0.48	0.52	0.57	0.62	0.67	0.71	0.76	0.81	0.86	0.90	0.95	1	1.05	1.10	1.14	1.19	1.24	1.29	1.33	1.38	1.43
22	0.27	0.32	0.36	0.41	0.45	0.50	0.55	0.59	0.64	0.68	0.73	0.77	0.82	0.86	0.91	0.95	1	1.05	1.09	1.14	1.18	1.23	1.27	1.32	1.36
23	0.26	0.30	0.35	0.39	0.43	0.48	0.52	0.57	0.61	0.65	0.70	0.74	0.78	0.83	0.87	0.91	0.96	1	1.04	1.09	1.13	1.17	1.22	1.26	1.30
24	0.25	0.29	0.33	0.38	0.42	0.46	0.50	0.54	0.58	0.63	0.67	0.71	0.75	0.79	0.83	0.88	0.92	0.96	1	1.04	1.08	1.13	1.17	1.21	1.25
25	0.24	0.28	0.32	0.36	0.40	0.44	0.48	0.52	0.56	0.60	0.64	0.68	0.72	0.76	0.80	0.84	0.88	0.92	0.96	1	1.04	1.08	1.12	1.16	1.20
26	0.23	0.27	0.31	0.35	0.38	0.42	0.46	0.50	0.54	0.58	0.62	0.65	0.69	0.73	0.77	0.81	0.85	0.88	0.92	0.96	1	1.04	1.08	1.12	1.15
27	0.22	0.26	0.30	0.33	0.37	0.41	0.44	0.48	0.52	0.56	0.59	0.63	0.67	0.70	0.74	0.78	0.81	0.85	0.89	0.93	0.96	1	1.04	1.07	1.11
28	0.21	0.25	0.29	0.32	0.36	0.39	0.43	0.46	0.50	0.54	0.57	0.61	0.64	0.68	0.71	0.75	0.79	0.82	0.86	0.89	0.93	0.96	1	1.04	1.07
29	0.21	0.24	0.28	0.31	0.34	0.38	0.41	0.45	0.48	0.52	0.55	0.59	0.62	0.66	0.69	0.72	0.76	0.79	0.83	0.86	0.90	0.93	0.97	1	1.03
30	0.20	0.23	0.27	0.30	0.33	0.37	0.40	0.43	0.47	0.50	0.53	0.57	0.60	0.63	0.67	0.70	0.73	0.77	0.80	0.83	0.87	0.90	0.93	0.97	1