

Calibrating Silage & Hay Inoculant Applicators

To effectively apply silage and hay inoculants to silage and hay, the applicator needs to be properly calibrated.

The following procedure will enable you to properly calibrate by using a number of simple measures.

1. Set up the applicator on the machine as it will run when in use. Ensure the nozzles are clear.
2. Part fill the tank and start applicator pump, operating at normal pressure.
3. Measure the volume of spray by placing a jug or bucket under the nozzle to catch the spray. Measure for one minute, multiply by 60 and divide by 1000 to calculate litres per hour
A =mL per minute x 60/1000
=L per hour

(If the applicator has multiple nozzles, either measure each nozzle and add the volume together, or multiply the output measured by the number of nozzles.)

4. Record how many bales per hour the baler will process when fully operational at normal speed.
B =Bales per hour
5. Record the weight of bales normally produced by the baler at these operational settings
C = Kg per bale
6. Calculate the Tonnes per hour produced by the machine
D = B x C divided by 1000 Kg = Tonnes per hour

(For bulk silage choppers, simply insert the tonnage produced per hour.)

7. Application rate - To calculate the Litres per Tonne applied by the applicator (E)
E = A / D = /
= L/T
i.e. if the applicator applies 36L per hour, divide 36 by the number of tonnes per hour to give the litres per tonne which is 0.8L/T

For mixing to apply the inoculants to a specific amount of Hay or Silage

8. To calculate the dilution rate for Si-Lac and Si-Lac Extra:
If you require measured amount of mixture (A) to apply to 1 tonne of silage, then you need to multiply the number of tonnes to be treated by the number of L/T (E) to calculate the amount of water to add it to.

$$\text{Volume of water required (V)} = \text{no. tonnes to treat (F)} \times \text{E}$$
$$\text{V} \quad \quad \quad \times \quad \quad \quad = \quad \quad \quad \text{Litres}$$

For mixing inoculants using the tank capacity

9. To calculate the amount of inoculant you can add to the tank based on applicator tank capacity:

$$\text{Qty inoculants to add} = \text{tank capacity (L) divided by rate /tonne (E) in Litres}$$
$$= \quad \quad \quad / \quad \quad \quad$$
$$= \quad \quad \quad \text{Tonne}$$



Example

Round bale baler, single nozzle applicator

A Applicator volume output = 500mL/minute = 30L / hour

B Bales per hour output = 60 bales per hour

C Weight per bale = 600 Kg

F Need to treat 100T

Applicator Tank capacity = 100L

Tonnes per hour $D = B \times C / 1000 = 60 \times 600 / 1000 = 36$ Tonnes per hour

Rate applied $E = A / D = 30 / 36 = 0.833$ L per Tonne

Volume of water required to add to tank to treat 100Tonne (V) = F x E = 100 x 0.833 = 83.3L

Qty of inoculants to add to full tank = tank capacity / E = 100 / 0.833 = 120 Tonne equivalent

There fore the contractor/farmer needs to add sufficient Silage inoculant to treat 100 T of silage to 83.3L water in the tank to be applied at the rate of 0.833 L per Tonne of silage

Silage Inoculant Applicator Ready Reckoner

Assume 60 bales per hour; 600Kg per bale = 36T/Hour

Nozzle Output mL / Min	Volume to treat 50T Litres	Volume to treat 250T Litres
75	6.3	31.3
100	8.3	41.7
125	10.4	52.1
150	12.5	62.5
200	16.7	83.3
250	20.8	104.2
300	25.0	125.0
350	29.2	145.8
400	33.3	166.7
450	37.5	187.5
500	41.7	208.3
550	45.8	229.2
600	50.0	250.0
650	54.2	270.8
700	58.3	291.7
750	62.5	312.5
800	66.7	333.3
850	70.8	354.2
900	75.0	375.0
950	79.2	395.8
1000	83.3	416.7