



ESTIMATING THE SIZE OF A SILAGE PIT

AIM: TO SUPPORT FARMERS TO ESTIMATE THE REQUIRED SIZE OF A SILAGE PIT FOR HOLDING THE EXPECTED HARVEST.

STEP 1: How big is your area?

- From a 1 lima area (50 metre x 50 metre), select three sites:
 - Where crop growth is **POOR**;
 - Where crop growth is **AVERAGE**;
 - Where crop growth is **GOOD**.
- At each site, remove the herbage from a 1m x 1m area
- Weigh the amount of herbage collected from each sample point and record in the table below. **REMEMBER** to weigh accurately.

STEP 2: How was the growth?

- Add up the total of all samples.

Sample point	Growth	Weight of herbage collected
1	POOR	Kg
2	AVERAGE	Kg
3	GOOD	Kg
Total		Kg

STEP 3: Calculate the average weight of a sample

- Divide the total by **3**. E.g.

	Weight of herbage collected
Point 1	2 Kg
Point 2	6 Kg
Point 3	10 kg
Total	18 kg

$$\text{Average weight} = \frac{2+6+10}{3} = \frac{18}{3} = 6\text{kg}$$

STEP 4: Calculating the expected herbage

- Multiply the average sample weight by the total area planted to get the total herbage. E.g. if total area planted is 1 lima (2,500m²):

$$6 \text{ Kg} \times 2,500 = 15,000 \text{ kg of expected herbage}$$



ESTIMATING THE SIZE OF A SILAGE PIT

STEP 5: Estimating the Dry Matter content of the herbage

- Multiply the amount of herbage by **0.3** to get the dry matter content. E.g.

$$15,000 \text{ kg} \times 0.3 = 4,500 \text{ kg of dry matter}$$

- 500kg of fresh herbage is equivalent to 150kg of dry matter.
- 150kg dry matter when well compressed is equivalent to 1 cubic metre (i.e. 1m x 1m x 1m).

STEP 6: Estimating the volume of the pit in cubic metres

- Divide the Dry matter herbage by **150** to get the size of the pit in cubic meters e.g.

$$\text{Volume of pit m}^3 = \frac{4500}{150} = 30 \text{ cubic meters}$$

STEP 7: Estimating the length of the pit

- The recommended depth of the pit is **1 metre**.
- The recommended width of the pit is **2 metres**.
- To calculate the length of the pit, divide the volume (length x depth x width) by **2** (depth x width), e.g.

$$\text{Length of the pit} = \frac{30}{2} = 15 \text{ metres}$$

The dimensions of the pit are:	1 metre deep
	2 metres wide
	15 metres long

REMEMBER:

- ✓ Smaller/narrower pits can be easier to manage than one large/wide pit.
 - ✓ Herbage needs to be well compacted.
 - ✓ Pits should be well covered with plastic and kept airtight.
 - ✓ Ensure water does not enter into, or pool on top of the silage pit.
- For further information, contact your local **Extension Officer**.

ZDTP is focused on supporting dairy farmers to improve their productivity, milk quality and linkages to urban markets. The views expressed in this publication are those of the implementers of the programme and do not necessarily reflect those of the New Zealand Government. For further information, please contact ZDTP on zdtpinfo@primeconsultants.net. Follow us on www.zambiadairy.com, Facebook (facebook.com/zambiadairy/) and Twitter (@DairyZambia).