

Using date palm compost

Recommendations for Arid and Semi-Arid regions based on results on barley crop

1. Choosing the right nitrogen source for compost

The quality of your compost depends on the nitrogen source used with date palm residues. Here is what you need to know (based on preliminary work):

- **Sheep manure:** high NPK content, low C:N ratio, high germination rates
- **Poultry manure:** High in nitrogen and potassium, but may reduce germination
- **Sewage sludge:** Mature and low in C:N ratio, but lacks potassium
- **Landfill leachate:** Slows organic matter breakdown and has limited benefits for crops

2. Recommended compost dose

To meet barley's nitrogen needs and support a good yield, follow this guideline.

- **For an expected yield** of 50 q/ha (quintals per hectare)
- Considering: - **Compost dry matter content (DM):** Approximately 70%
- **Mineralization rate (Min):** Around 20% (availability of nitrogen to plants)

Compost N content	Recommended Dose
g/kg	t/ha
10	77
15	51
20	38

$$\text{Compost DM} = \frac{\text{N export} \times \text{Expected yield}}{\text{N content} \times \text{DM} \times \text{Min}}$$

→ **Method of application:** Mix compost into the **top 0-10 cm** of the soil. This allows nutrients to reach the root zone effectively.

3. Advantage



- ✓ Easy to apply
- ✓ Add nutrients into the soil and enhance crop yield between 30 to 140% compared to non amended soil
- ✓ Compared to manure, eliminates pathogens and weed seeds during composting process

4. Things to consider



- ✗ Very high mineral content
- ✗ Soil salinization risk due to the high salt content in compost
- ✗ Nitrogen available at the beginning of the crop. Nitrogen supply required in case of

flood irrigation because of high nitrate losses by leaching. Can be greatly reduced in case of **drip irrigation** systems