Chemical fertilisers and organic soil amendments – finding a sweet spot between managing costs and maintaining production.

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Aims

“Sustain crop productivity while controlling input costs and preserving soil health”

To develop an Integrated Nutrient Management plan (INMP).

Involves the complimentary use of chemical and organic fertilisers for the immediate and longterm sustainability and productivity.

Requires monitoring – soil testing, etc.

Focus on strategic integration not replacement

Contribution of chemical fertilisers

Dependance on synthetic fertilisers.

Recent volatility – transport, supply chains and world instability.

Concentrated plant available forms – MAP, DAP & MOP.

Predictable and allowing blend formulations.

Environmental concerns – eutrophication, necessitate complimentary approach.

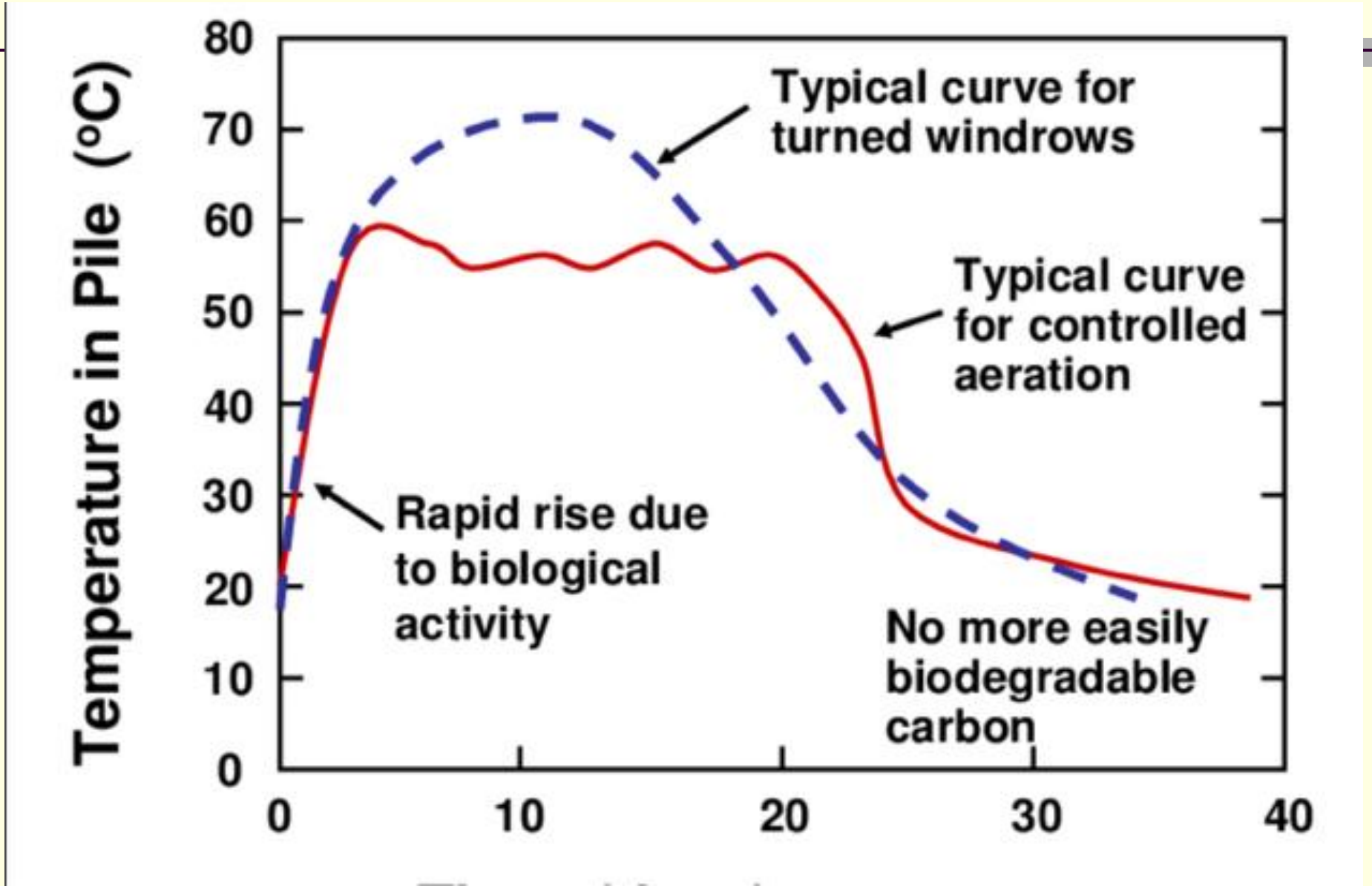
Rapid availability and potential short term returns

Accreditation of compost

Compliance with AS 4454 is a key requirement for producers, suppliers, and users of compost and mulch. It ensures that products meet safety and quality benchmarks, making them effective and environmentally responsible for use in everything from residential gardens to large-scale agricultural projects.

AS 4454 guarantees that the compost has been properly pasteurized to kill weeds and pathogens, contains optimal nutrient levels, and is safe for plant growth.

Composting process



Compost affects in the soil

- Soil structure
  - soil moisture
  - soil porosity
  - soil aeration
- Soil biology and enzymes
- Soil organic carbon
- Soil fertility
- Soil heath
  - Plant stress
  - increased disease suppression

Economic consideration - Compost value

Nutrients		Carbon Plus	$/t	Kg/t	t/ha	Prices (30.3.2026) $/tonne bulk landed Darling Downs, including GST				
				year 1	10		$/t	$/t	Analysis	$/kg
Nitrogen (kjeldahl)	%	2.31	45.20	4.57	45.74		GST Incl	No GST	%	
Nitrate Nitrogen	mg/kg	3.27								
Ammonium Nitroger	mg/kg	1,510				Urea (N)	1500	1363.64	46	2.96
Phosphorus	%	1.22	37.90	4.03	40.26	MAP (P)	1460	1327.27	21.9	4.71
Potassium	%	0.52	6.55	3.09	30.89	MOP (K)	1050	954.55	50	1.91
Sulphur	%	0.3	1.33	0.79	7.92	Gypsum (Ca)	500	454.55	18	2.53
Calcium	%	1.81	30.17	4.78	47.78	Gran Am (N)	830	754.55	20.2	3.74
Magnesium	%	0.59		1.56	15.58	Granulock Z (P	907.5	825.00	21.8	2.29
Sodium	%	0.61				Gran Am (S)	830	754.55	24	0.67
Chloride	%	0.454								
Chloride	mg/kg	4540								
Manganese	mg/kg			Assumptions						
Moisture @ 70C	%	34		1	The mineralisation rate in soil for nitrogen in Year 1 is 30 %					
pH (1:5 water)		8.42		2	The mineralisation rate in soil for phosphorus in Year 1 is 50 %					
Electrical Conductiv	dS/m	4.83		3	The mineralisation rate in soil for potassium in Year 1 is 90 %					
Organic Carbon	%	23.2		4	There is not any $ allocation for trace elements					
Dry Matter	%	66		5	There is not any $ allocation for contribution to soil carbon, soil structure, etc.					
Bulk Density		0.37		6	There is not any $ allocation or recognition for contribution to soil microbial biomass					
Organic Matter	%	39.9		7	There is not any $ allocation or recognition for contribution to soil disease manageme					
Carbon/Nitrogen ratio		10.0		8	There is no recognition of increases to soil water holding capacity.					
Agri Salinity Index		3.8		9	Program assumes that soil processes continue as per normal e.g. mineralisation					
Total $/t			**121.15**							

Soil samples and compost applications

Client Sample ID:		P2	P2	P2	P2
Sample Depth:		0-10	10 - 60	0-10	10 - 60
Sample Date:		**15/09/2022**		3-Apr-26	3-Apr-26
Parameter	Unit			Pre Barley	
Phosphorus - Colwell	mg/kg	42	27	89	32
Nitrate-N - KCl extractable	mg/kg	2.2	0.83	17.9	6.4
Ammonium-N - KCl extractable	mg/kg	0.94	<0.1	0.7	0.7
Weighted mean	Kg N/ha	2.41	4.96	19.69	38.4
Profile Nitrogen	Kg N/ha	7.37		58.09	
Cations					
Calcium - Exchangeable	cmol+/kg	1.9	2.3	3.14	4.79
Magnesium - Exchangeable	cmol+/kg	0.59	0.71	1.04	1.84
Potassium - Exchangeable	cmol+/kg	0.42	0.26	0.76	0.26
Potassium - Exchangeable	mg/kg	165	100	297	103
Sodium - Exchangeable	cmol+/kg			< 0.065	0.13
Aluminium - Exchangeable	cmol+/kg			0.02	0.02
Hydrogen - Exchangeable	cmol+/kg			0.065	< 0.01
Effective Cation Exchange Capa	cmol+/kg	3.0	3.3	5	7
Calcium - Base Saturation	%	64	69	62	68
Magnesium - Base Saturation	%	20	22	21	26
Potassium - Base Saturation	%	14	7.7	15	3.7
Sodium - Base Saturation (ESP	%	1.3	1.3	0.6	1.8
Carbon - Total	%		0.21		0.38
Nitrogen - Total	%		<0.02		0.14
Carbon : Nitrogen Ratio	Ratio				2.7
Estimated Organic Matter	%	0.77	0.36	1.892	0.66
Organic Carbon	%	0.45	0.21	1.1	0.38
Sulfur - MCP	mg/kg			5.1	

Any Questions ?????