BioComplete™ Compost

Lecture 7 – Static Compost

How to Make BioComplete™ Compost

- **Hot or Thermal Composting**
  - Commercial, back-yard, household
- **Worm or Vermicomposting (cold composting)**
  - Batch or flow-through
- **Static Composting**
  - Anaerobic middle, aerobic surface, leave alone for 1 – 2 years, hope for worms

Static Composting

There are many versions of static composting. What they all tend to have in common are large piles that are left for long periods of time (one to two years).

Household static piles are one version that is a combination of thermal and static.

Static Composting

- Mix shredded greens and woody starting materials together as in a green waste mix.
- Place 2 to 4 feet high layer of large branches, lumber, pallets of raw wood, bales of newspaper, cardboard on the bottom of the pile.
- Cover with green-woody mix.
- Place any high N materials in the center of the pile. Measure depth of this layer.
- Cover the high N layer by 3X more green waste mix.
- Make sure the outer layers of the pile remain aerobic so no odors are detected. If smells are detected, cover with a deeper layer of green – woody mix.
- Critical to not open the pile up until all the anaerobic processes are finished.

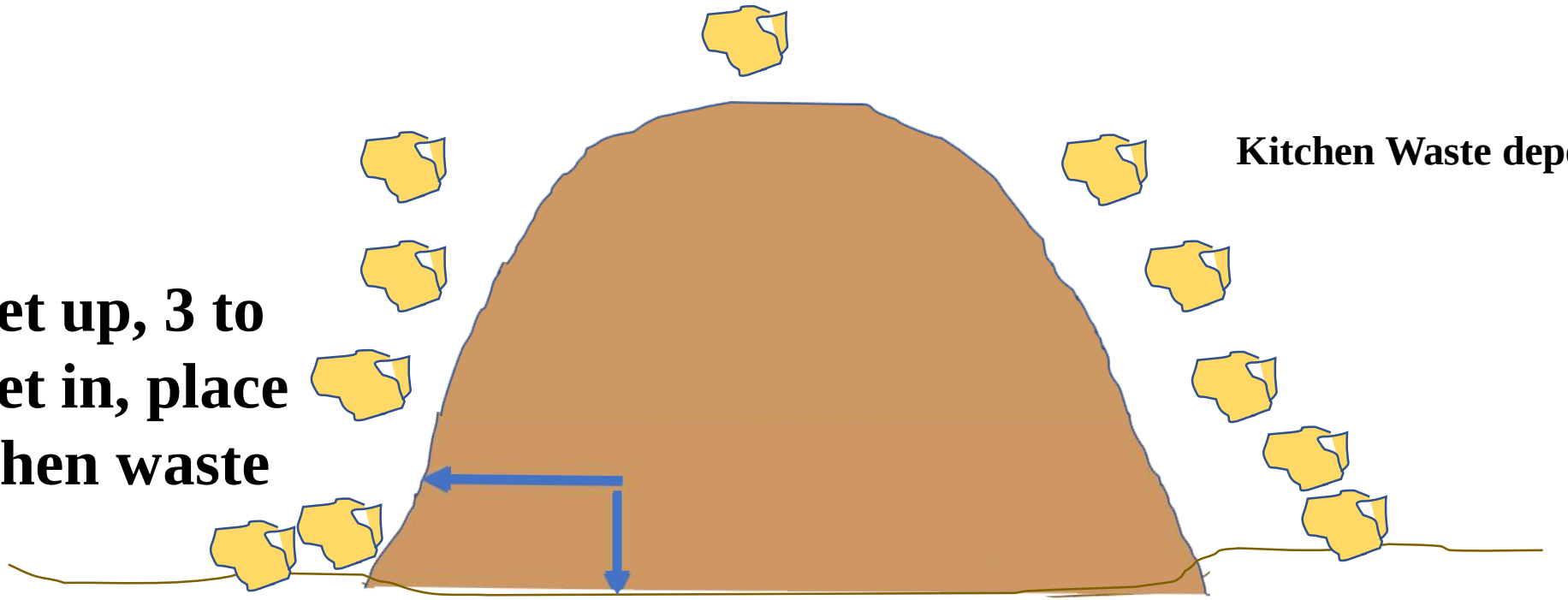
Static Composting

Household Waste Static Piles

- Mix shredded greens and woody starting materials together.
- Place 5 to 10 pounds of food waste into the pile about 2 feet up from the ground and a good 3 to 4 feet into the pile.
- The next 5 to 10 pound donation is placed into the pile 2 – 3 feet to right, same height, and depth into the pile. Repeat until you return to the original deposit.
- Move to 3 feet from the bottom of the pile and repeat the circle.
- Move to 4 feet from the bottom, and so on until the last deposit goes into the middle of the top of the pile.
- Let the pile have time to let all the high N get decomposed.
- If worms have showed up (or were added), let the worms finish the job. If no worms are helping, the add enough High N to do a thermal compost pile.

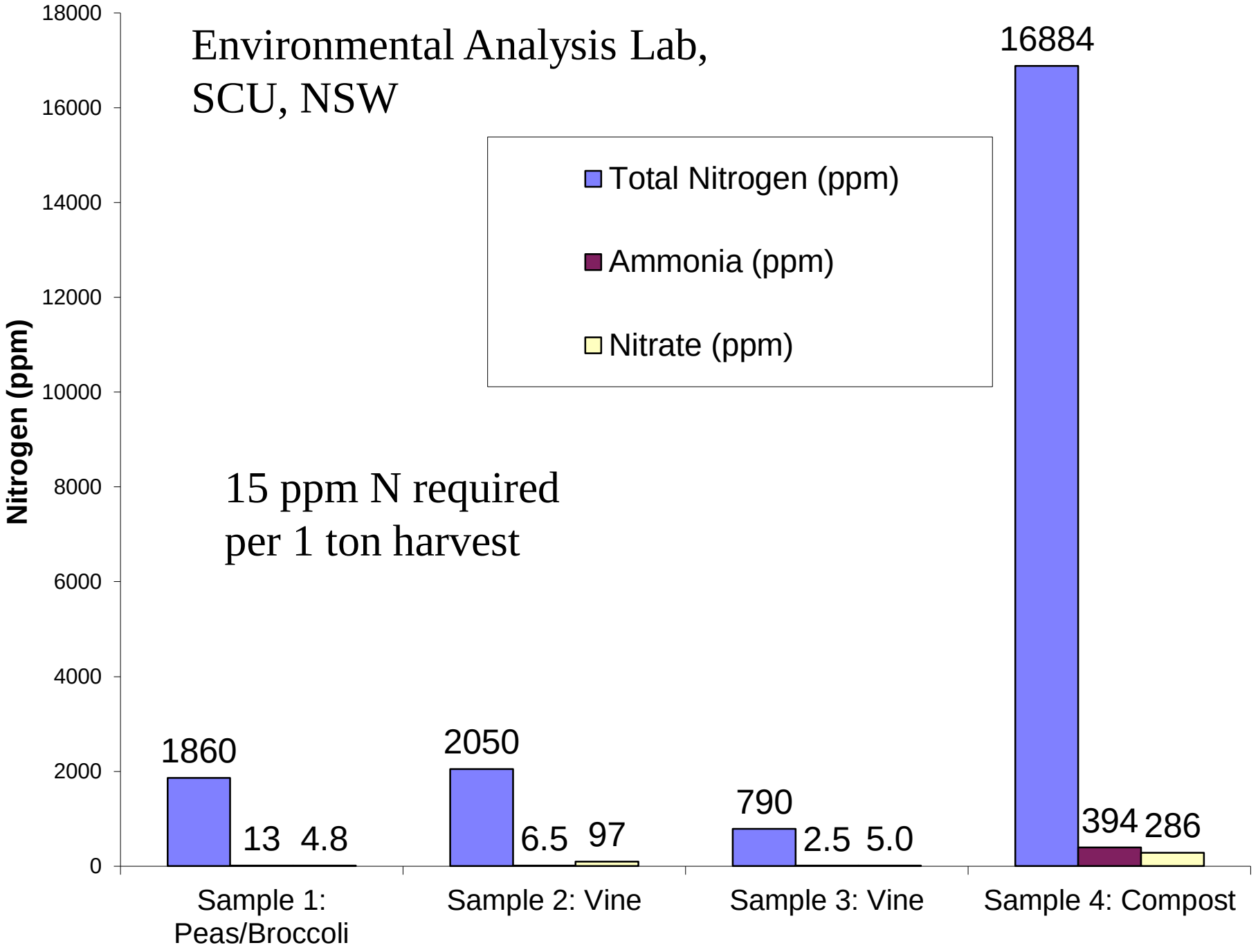
Household Waste Static Piles

2 feet up, 3 to 4 feet in, place kitchen waste

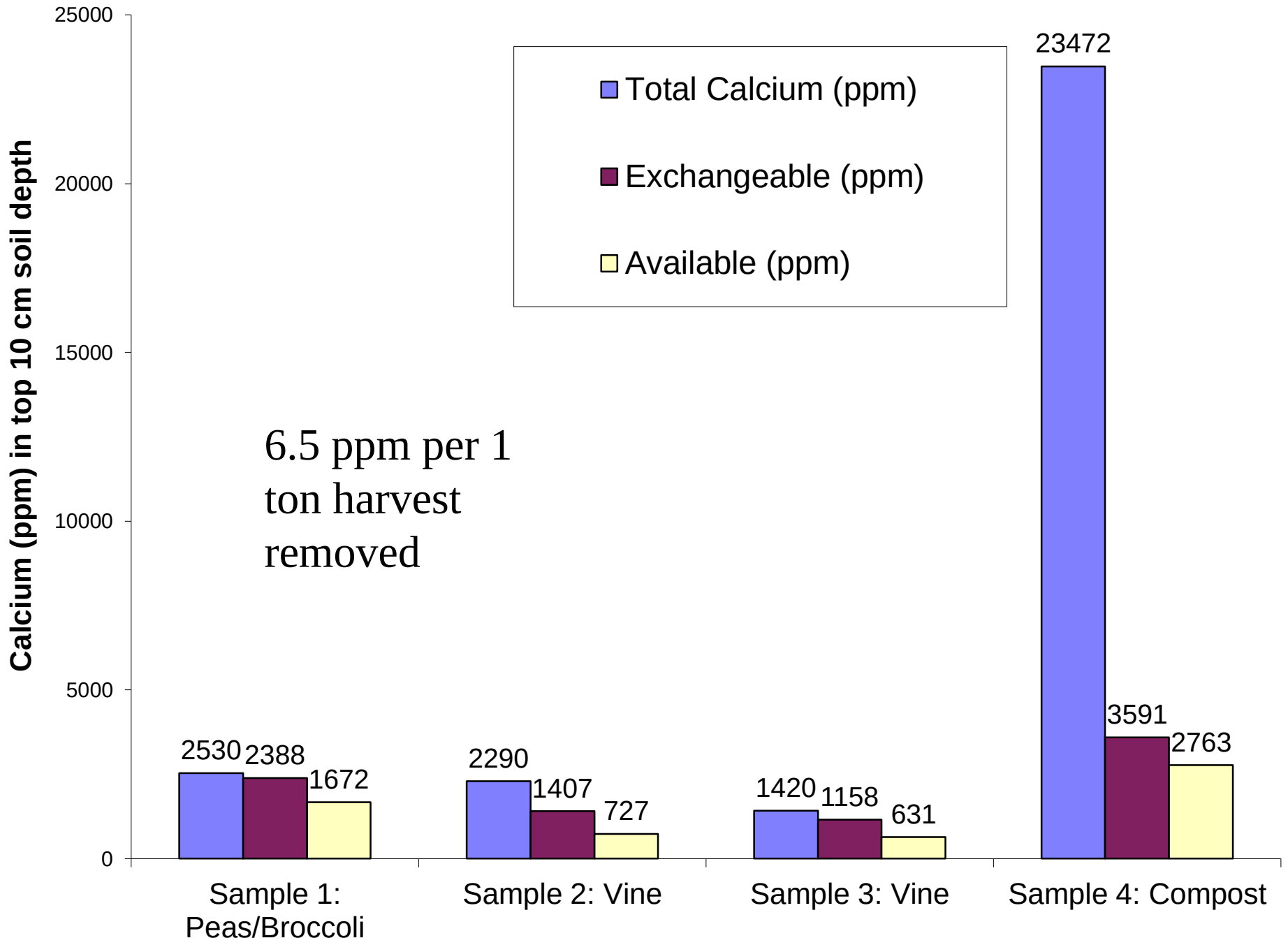


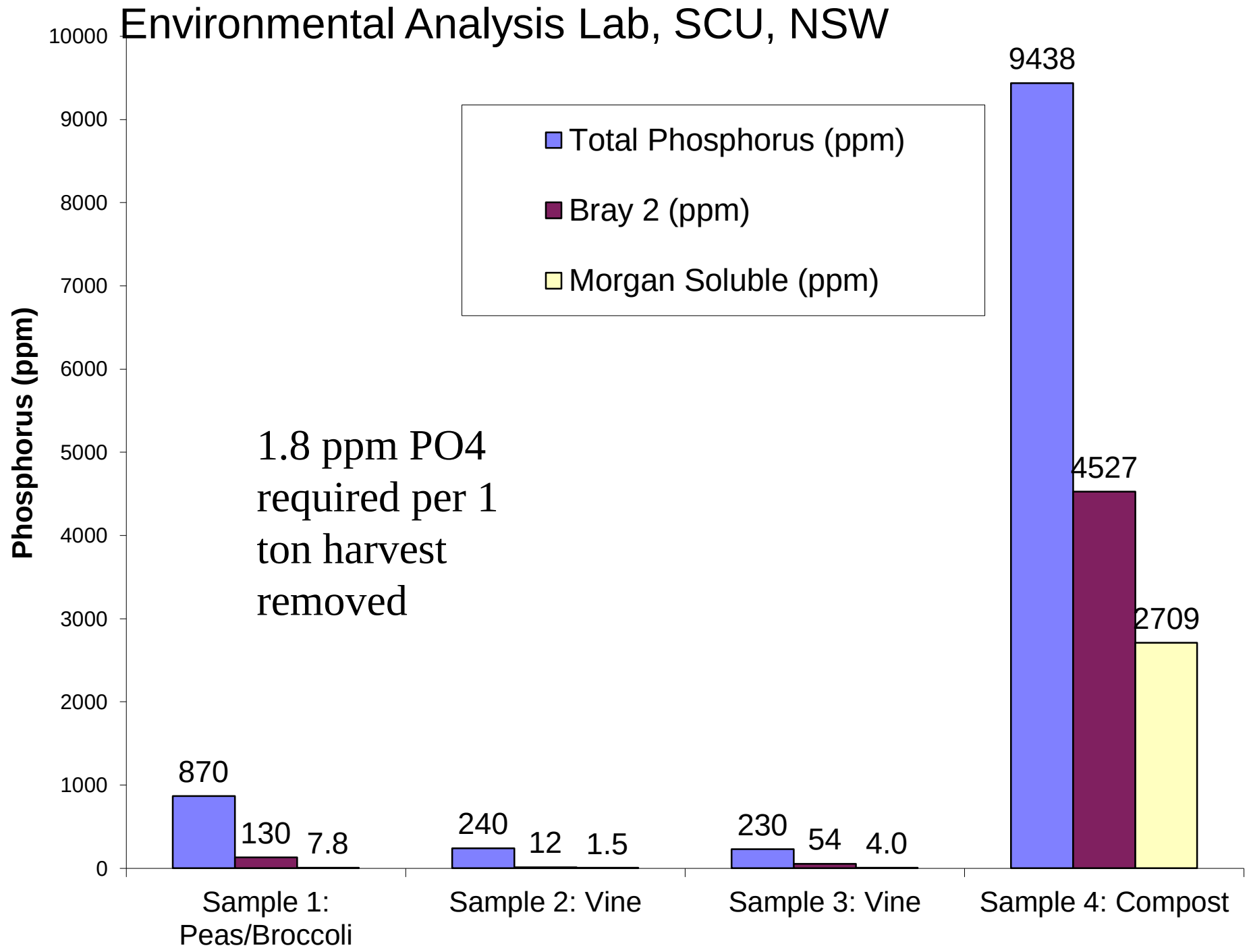
Is BioComplete™ Compost A Fertilizer?

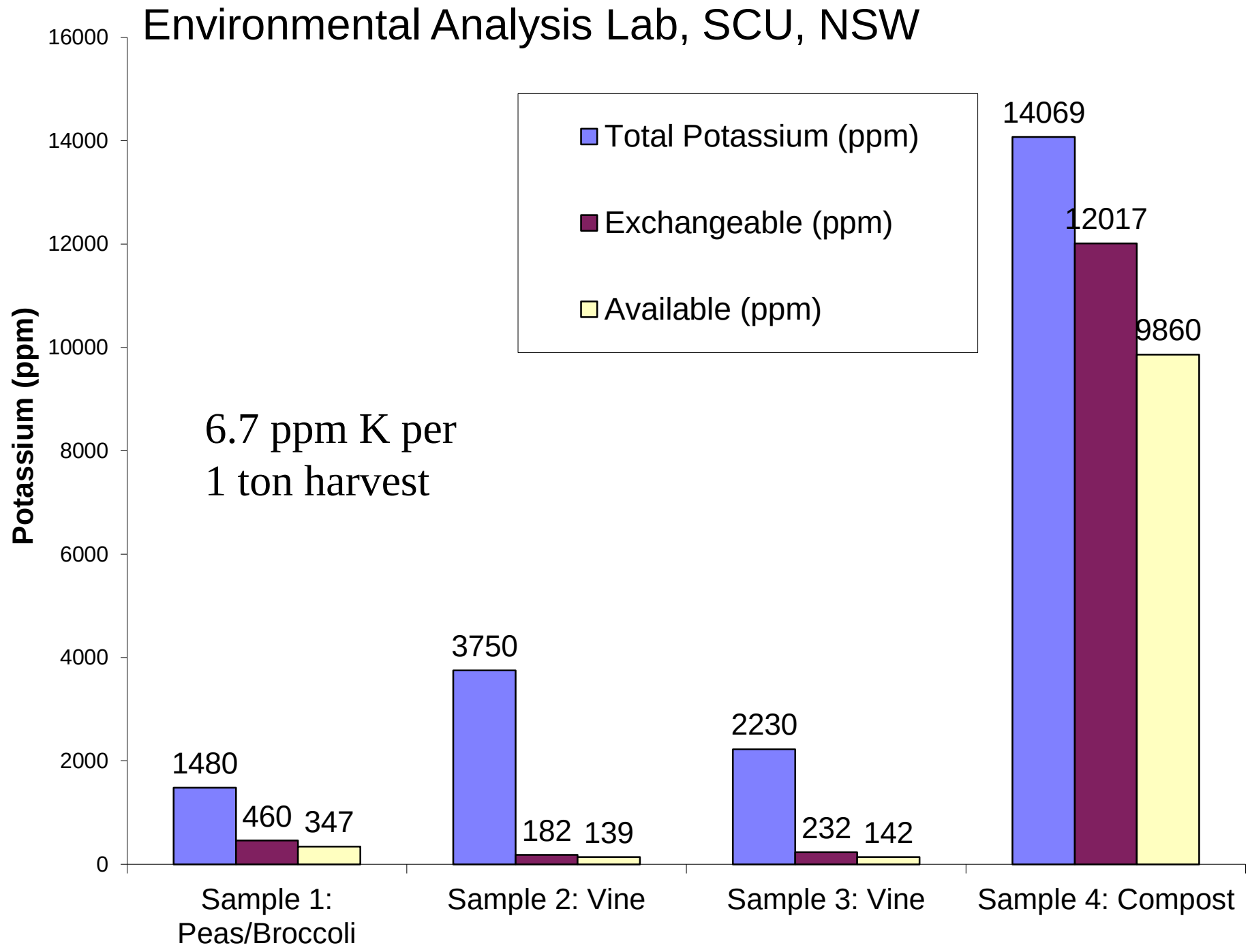
- Define fertilizer
- What forms of nutrients should be present?
- What moves nutrients from one pool to another?
- What do plants take-up?
- How much fertilizer is in compost?


Environmental Analysis Lab,
SCU, NSW
Total Nitrogen (ppm)
Ammonia (ppm)
Nitrate (ppm)
15 ppm N required
per 1 ton harvest
Nitrogen (ppm)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
1860
13
4.8
2050
6.5
97
790
2.5
5.0
16884
394
286
Sample 1: Peas/Broccoli
Sample 2: Vine
Sample 3: Vine
Sample 4: Compost

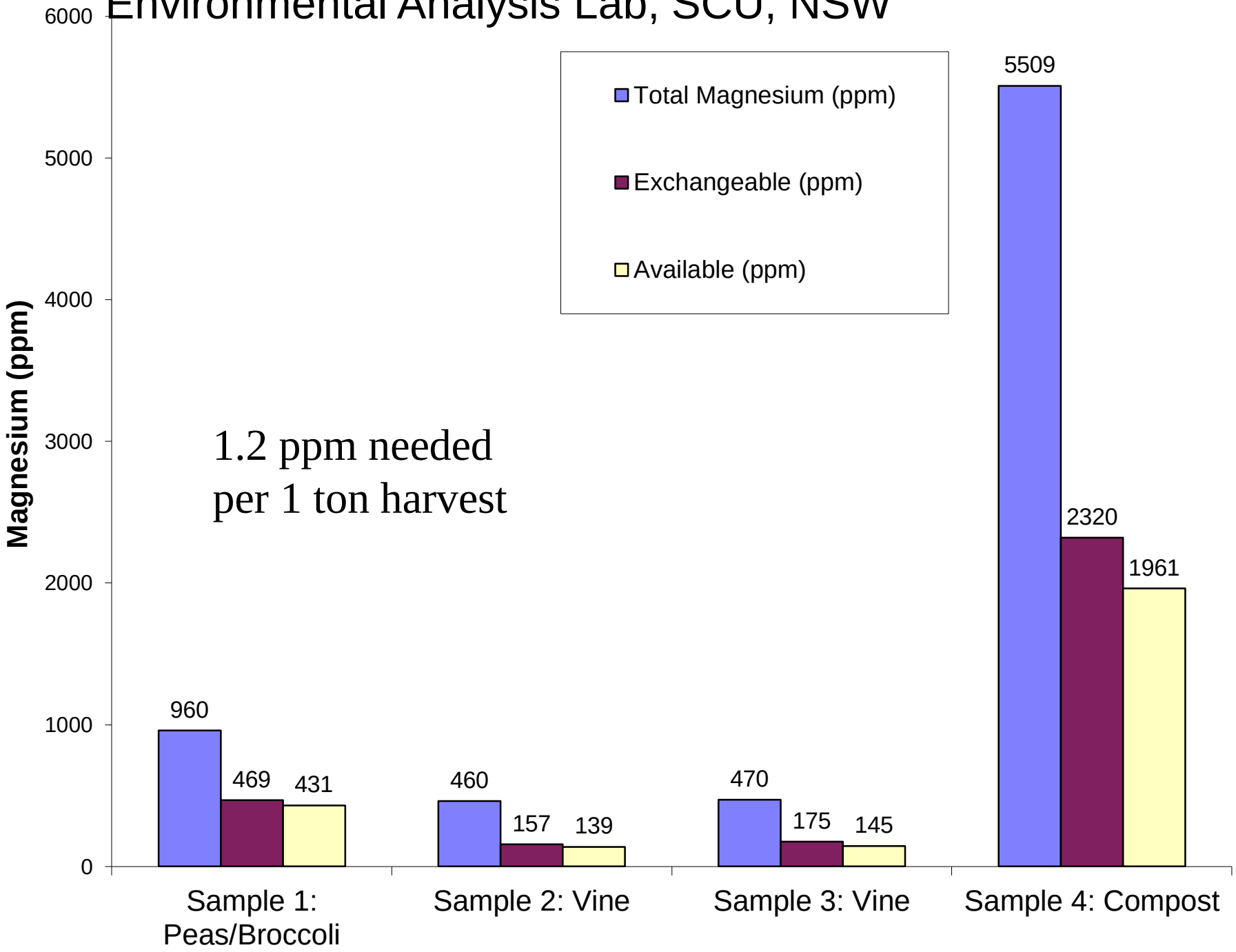
EAL data


Calcium (ppm) in top 10 cm soil depth
25000
20000
15000
10000
5000
0
Total Calcium (ppm)
Exchangeable (ppm)
Available (ppm)
6.5 ppm per 1 ton harvest removed
2530
2388
1672
2290
1407
727
1420
1158
631
23472
3591
2763
Sample 1: Peas/Broccoli
Sample 2: Vine
Sample 3: Vine
Sample 4: Compost


Environmental Analysis Lab, SCU, NSW
Phosphorus (ppm)
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Total Phosphorus (ppm)
Bray 2 (ppm)
Morgan Soluble (ppm)
1.8 ppm PO4 required per 1 ton harvest removed
870
130
7.8
240
12
1.5
230
54
4.0
9438
4527
2709
Sample 1: Peas/Broccoli
Sample 2: Vine
Sample 3: Vine
Sample 4: Compost


Environmental Analysis Lab, SCU, NSW
Potassium (ppm)
16000
14000
12000
10000
8000
6000
4000
2000
0
Total Potassium (ppm)
Exchangeable (ppm)
Available (ppm)
6.7 ppm K per
1 ton harvest
1480
460
347
3750
182
139
2230
232
142
14069
12017
9860
Sample 1: Peas/Broccoli
Sample 2: Vine
Sample 3: Vine
Sample 4: Compost

Environmental Analysis Lab, SCU, NSW



Organisms After BioComplete ™ Compost Addition

Organisms	Agricultural Field	BioComplete™ Compost (1 ton/ac)	Two weeks later
Total bacteria (µg/g dry soil)	300	2000	800
# bacterial sp/g soil (DNA)	5,000	75,000	75,000
Total fungi (µg/g dry soil)	5	950	650
# fungal species /g soil (DNA)	500	25,000	25,000
Protozoa: F, A C	0, 0 1,450	12,000, 31,000 29	6,000, 17,000 67

Finished BioComplete™ Compost: Another Way to Measure

- Dark brown color: not black, not tan
- Humic acids extractable; not muddy
- Fungal biomass visible
- Actinobacteria not visible, unless plant is riparian, wetland, or mustard family
- Good forest-floor smell; no stinky smells
- Fluffy, not balled, not matted


70% Cocoa
Bar


6538


5


6


OFF COVE


Monitor biology constantly