Managing pH in a Douglas fir Soilless Substrate for Containerized Nursery Crops

J.S. Owen Jr. and J. Kowalski

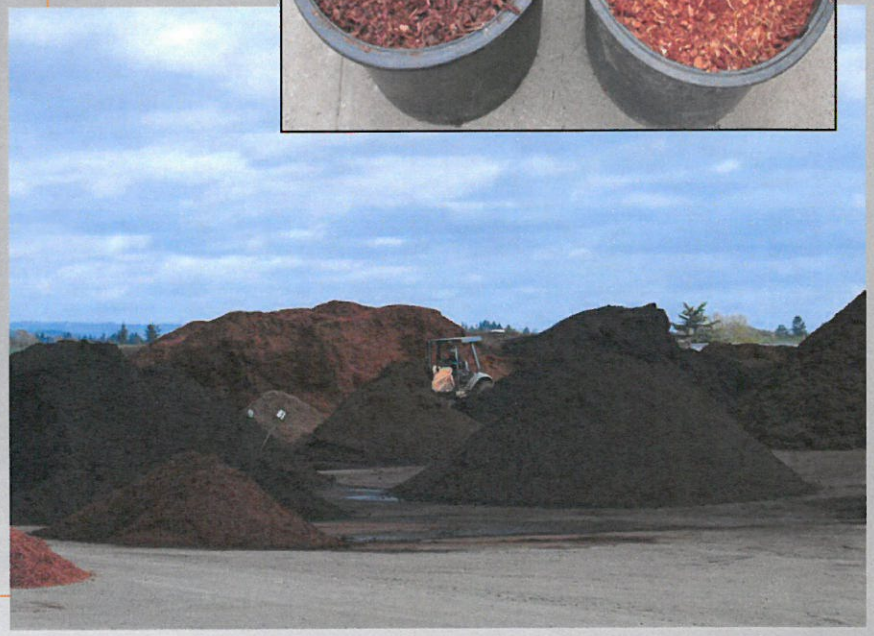
Study Objectives

- Evaluate effectiveness of commonly used Pre-Mix Liming Agents
  - Determine best rates for desired pH
  - Longevity of products

Douglas Fir Bark

- Widely used by most growers
- Consistency can vary

- Ideal pH range for most container crops, 5.2 - 6.3 range (BMP)



Managing pH in Douglas Fir Bark

pH Influences in Container Crops

- Addition of other media components
  - Peat & Compost
- Water Alkalinity
- 110 ppm-NWREC
- Fertilizers Types
- Pre-Mix
  Liming Agents

Managing pH in Douglas Fir Bark

Materials & Methods

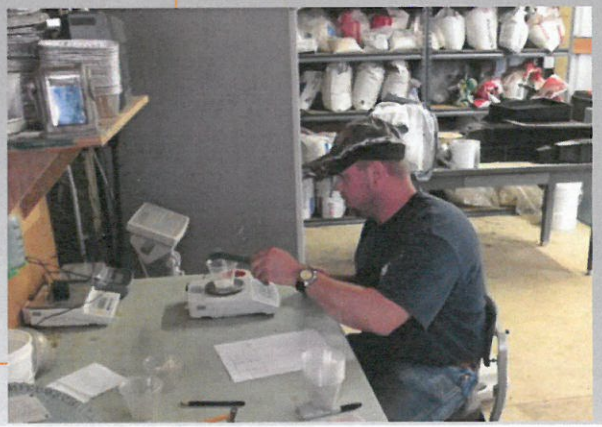
- Euonymus fortunei 'Emerald Gaiety'
- 1 Gallon Containers
- 5 individual plant replications
- CRD-Completely randomized design

Materials & Methods

- Douglas fir bark (<3/8 in)
- CRF 19-6-12 (8-9 month) 23 g/pot.
- Irrigated as needed
- Cravo Greenhouse

Materials & Methods

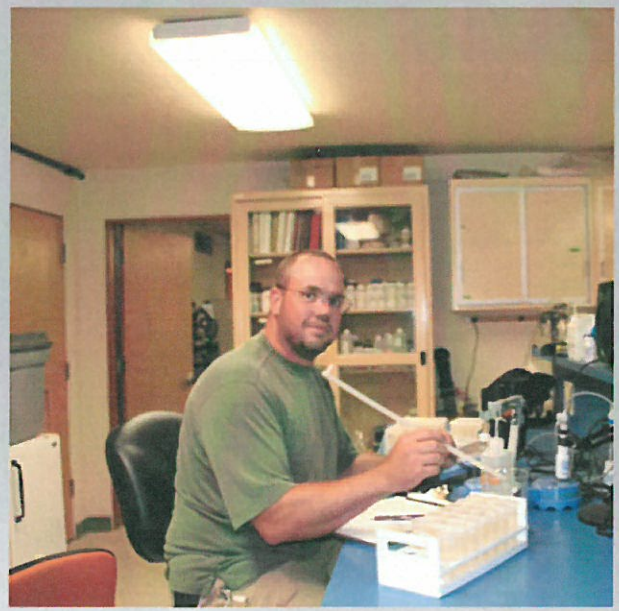
- Imperial Lime
- Pelletized Lime
- Ag Dolo 65
- Ag Dolo 10
- Microna
- Earthmix

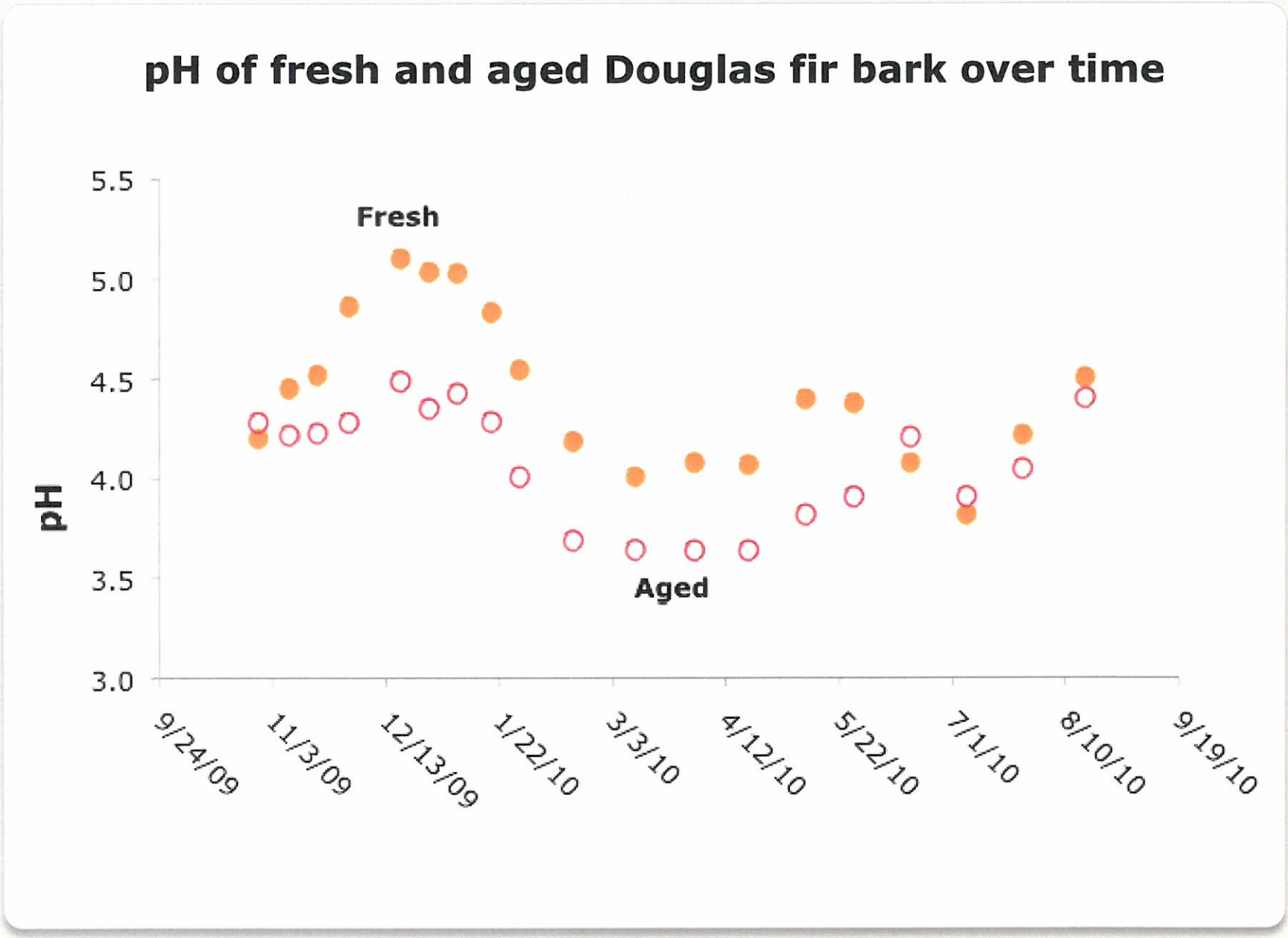


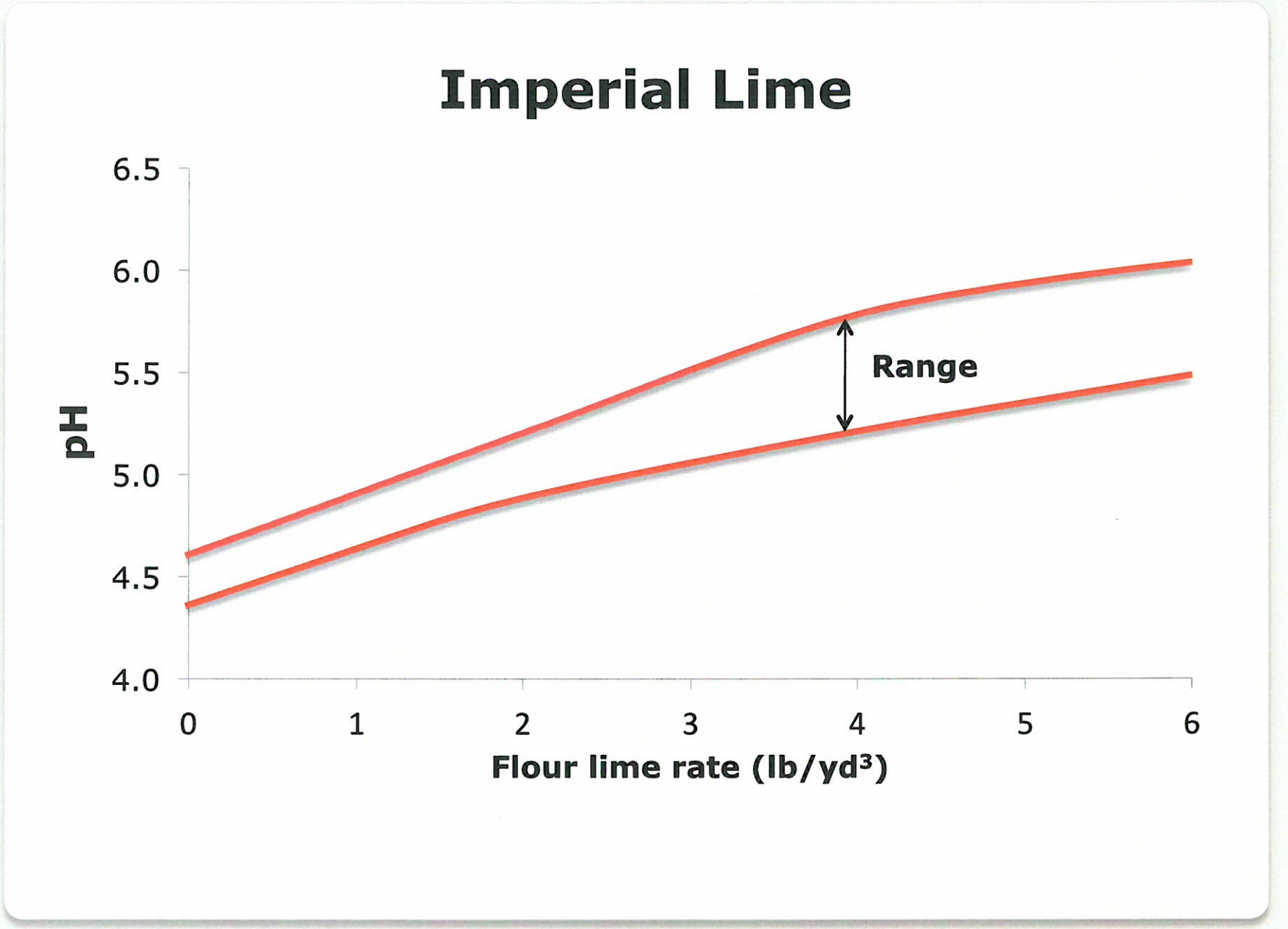
Managing pH in Douglas Fir Bark

Materials & Methods

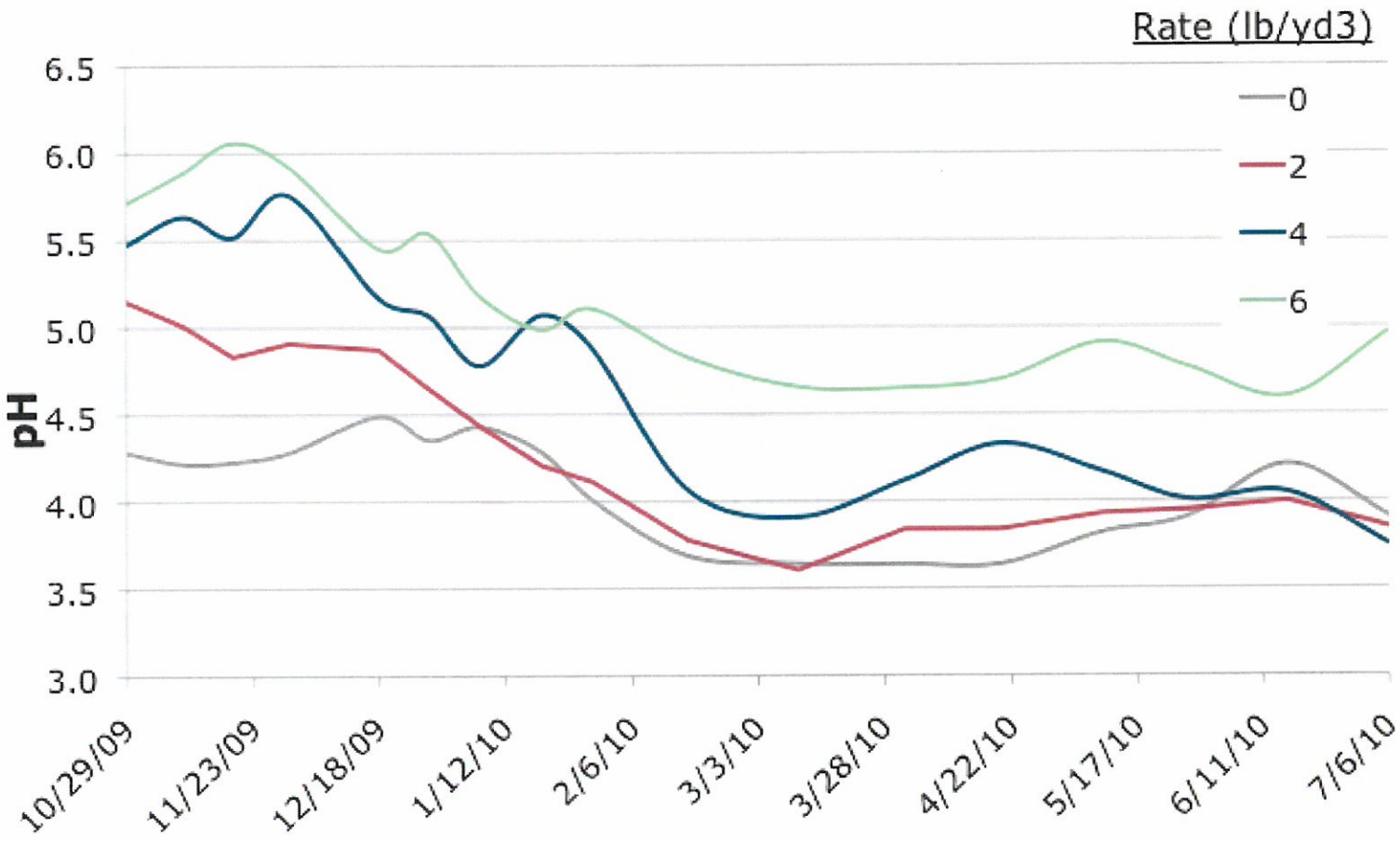
- Pour-thru done weekly or monthly on 3 reps

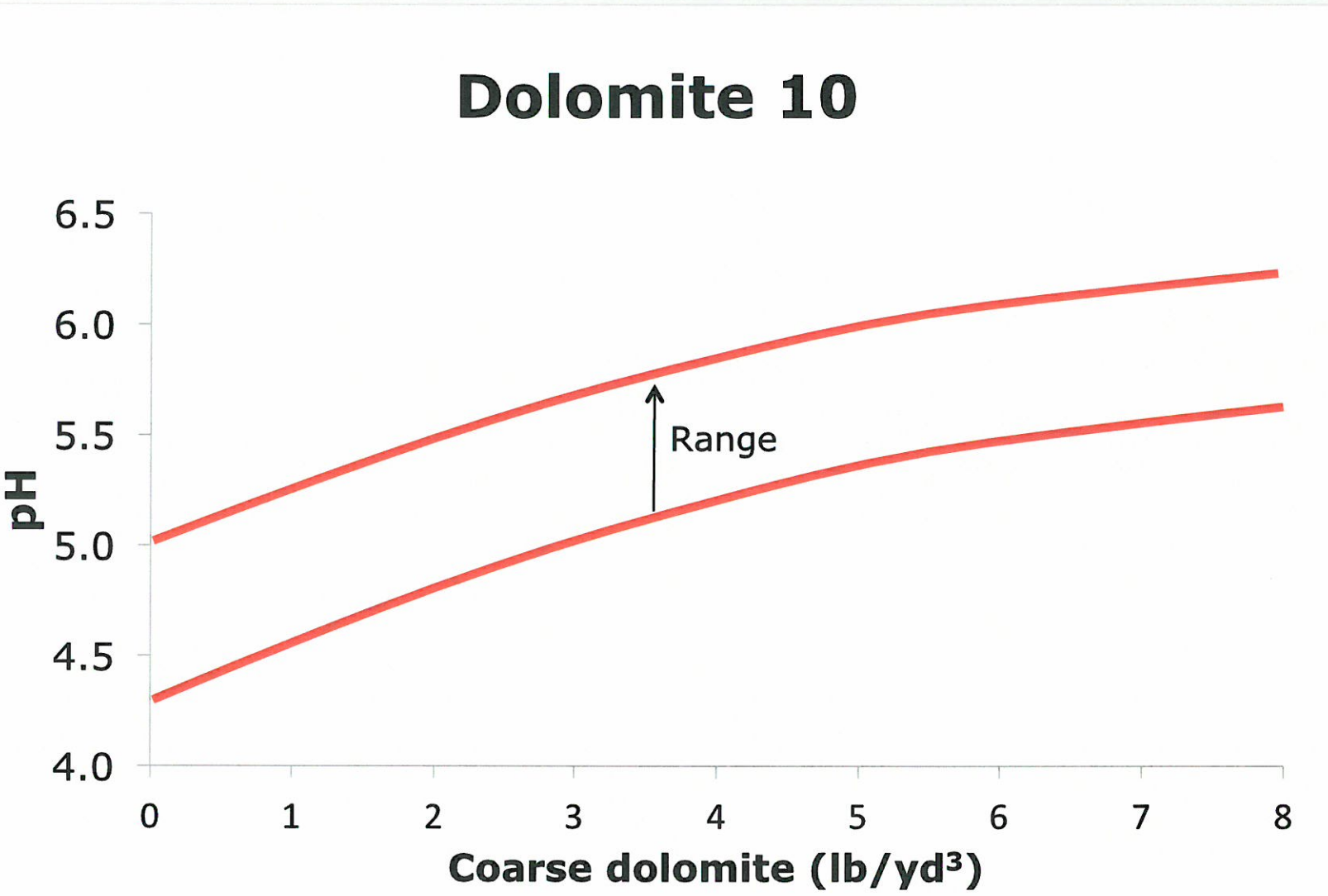


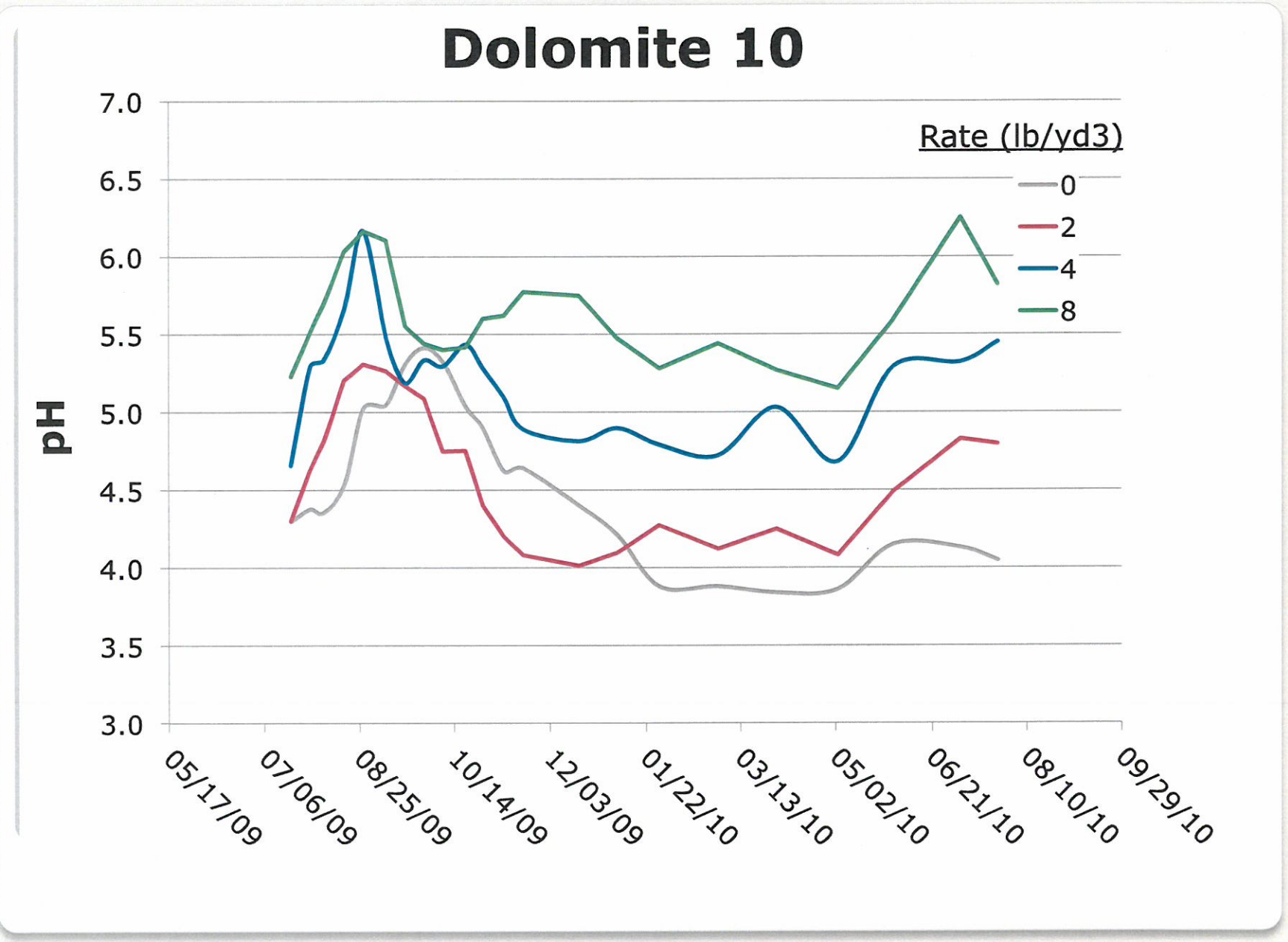

pH of fresh and aged Douglas fir bark over time
pH
5.5
5.0
4.5
4.0
3.5
3.0
Fresh
Aged
9/24/09
11/3/09
12/13/09
1/22/10
3/3/10
4/12/10
5/22/10
7/1/10
8/10/10
9/19/10

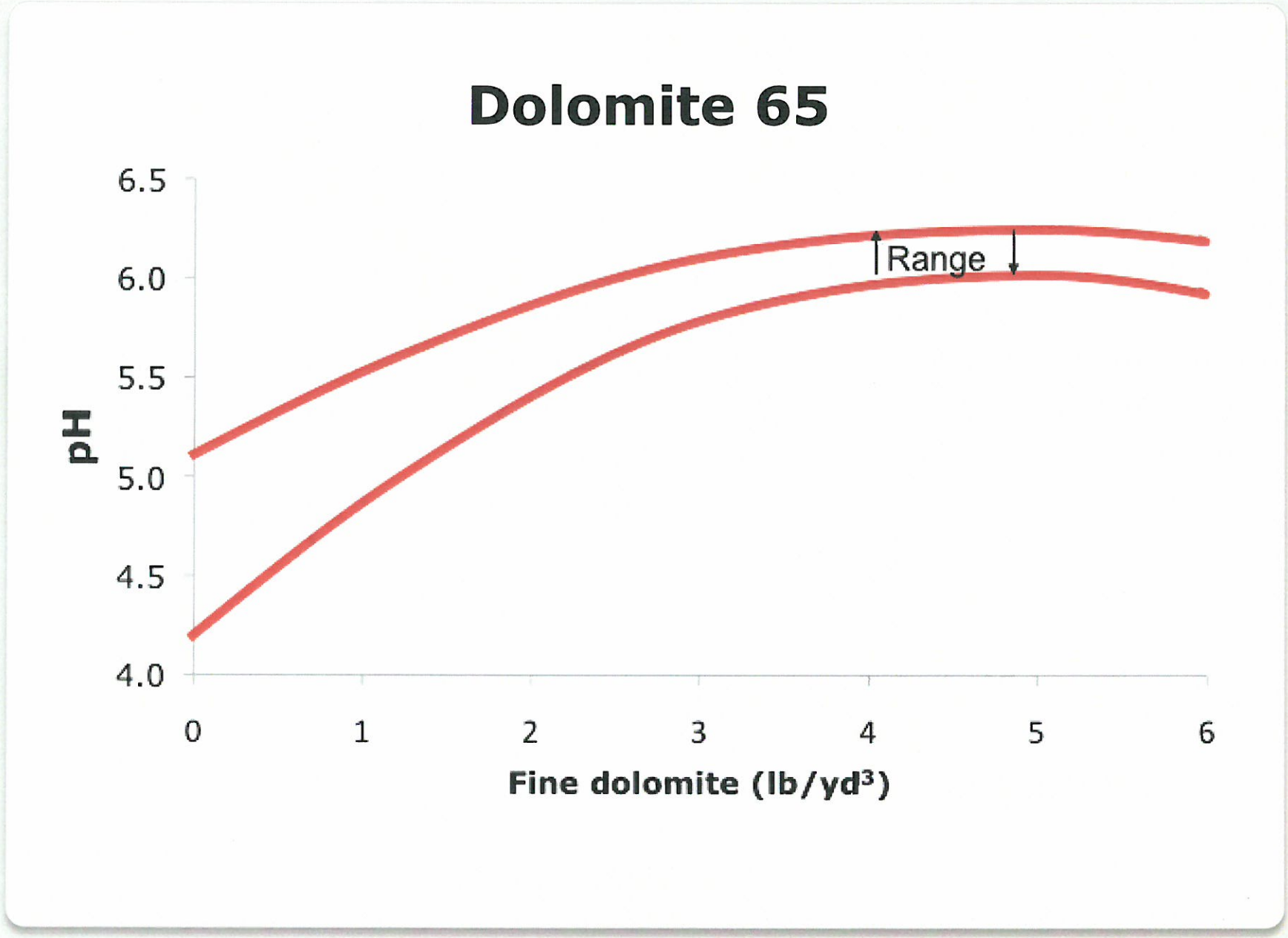

Imperial Lime
6.5
6.0
5.5
5.0
4.5
4.0
pH
Range
0
1
2
3
4
5
6
Flour lime rate (lb/yd³)

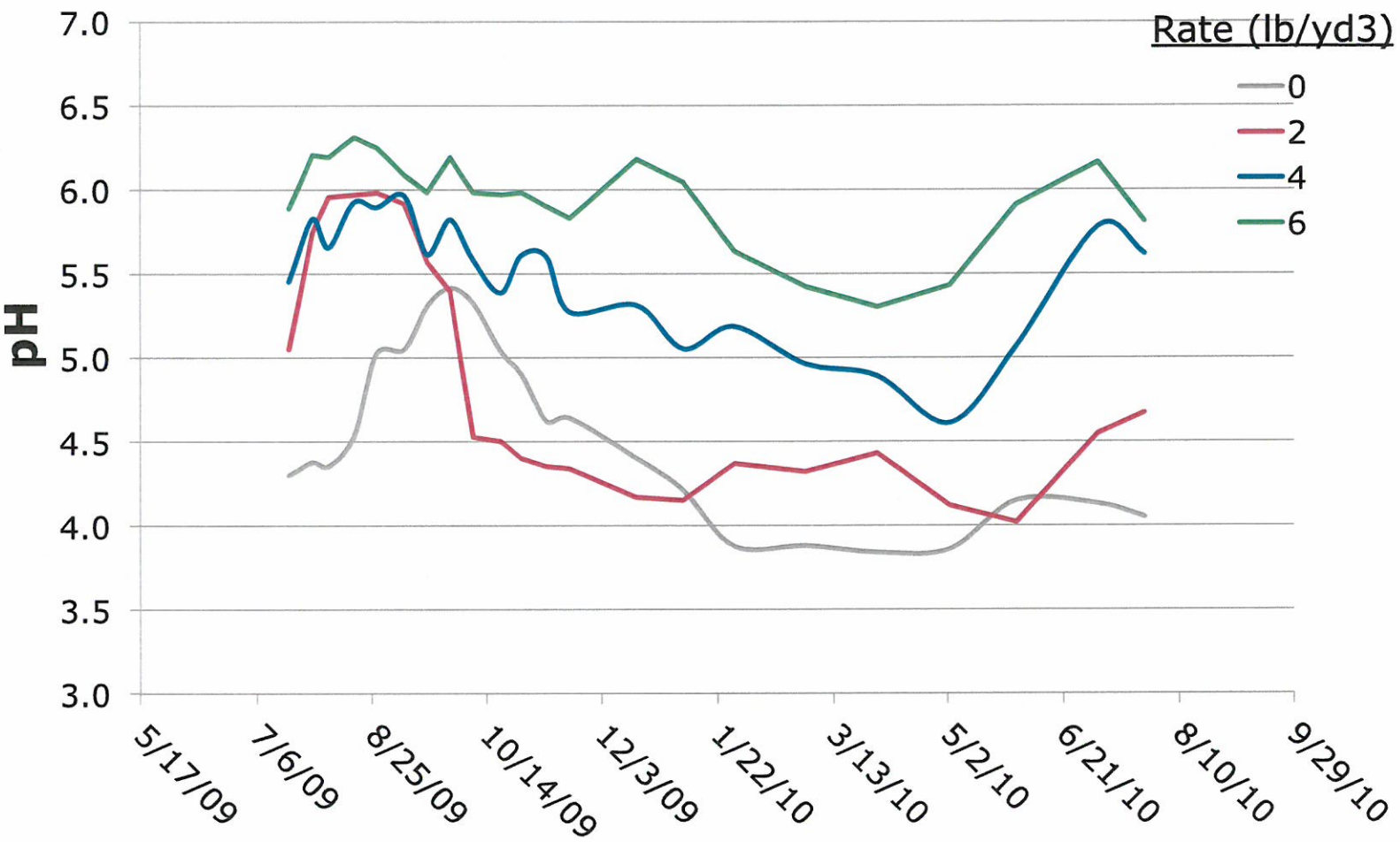
Imperial Lime




Dolomite 10
6.5
6.0
5.5
5.0
4.5
4.0
pH
Range
0
1
2
3
4
5
6
7
8
Coarse dolomite (lb/yd³)

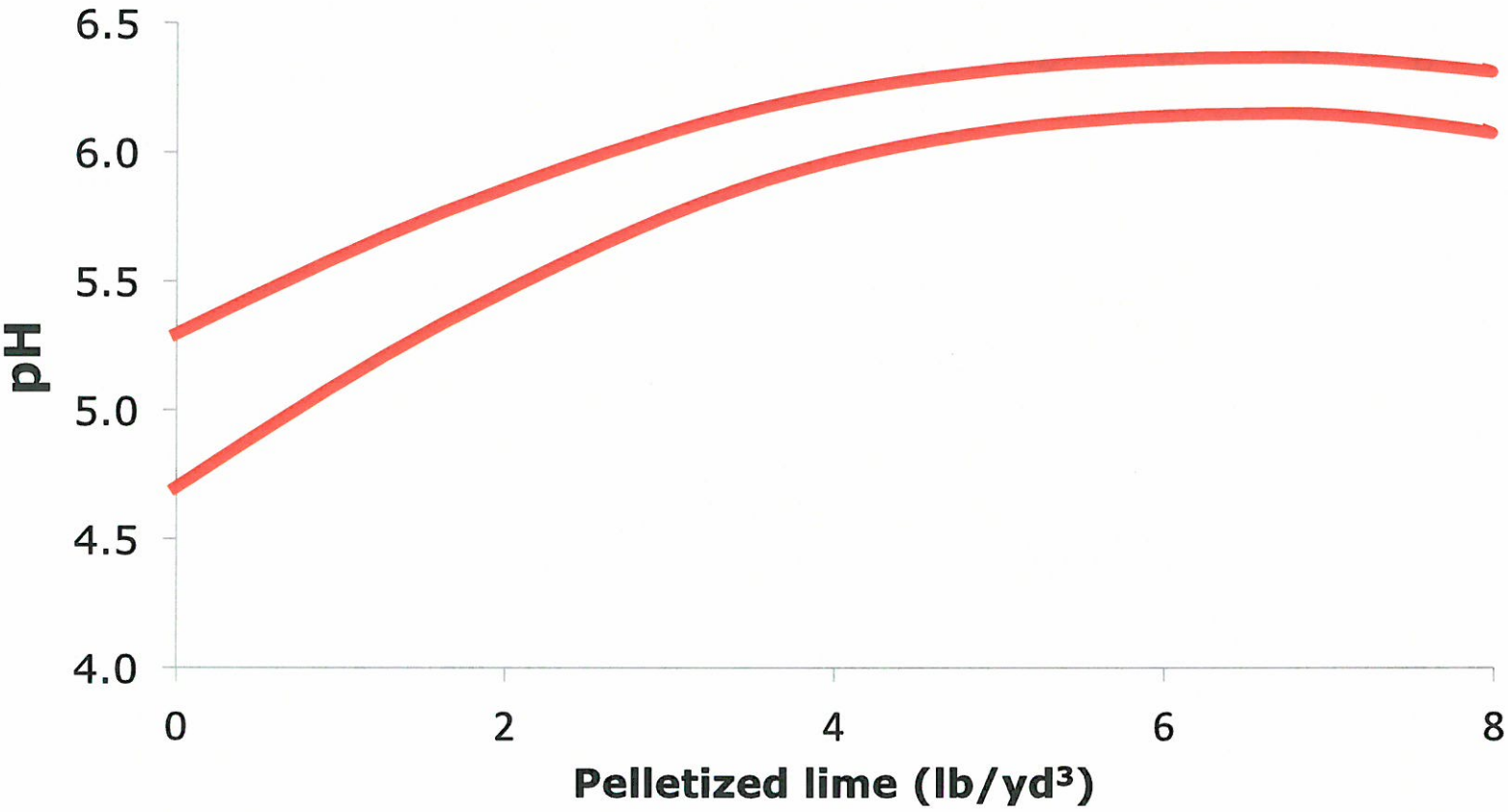

Dolomite 10
pH
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
Rate (lb/yd3)
0
2
4
8
05/17/09
07/06/09
08/25/09
10/14/09
12/03/09
01/22/10
03/13/10
05/02/10
06/21/10
08/10/10
09/29/10

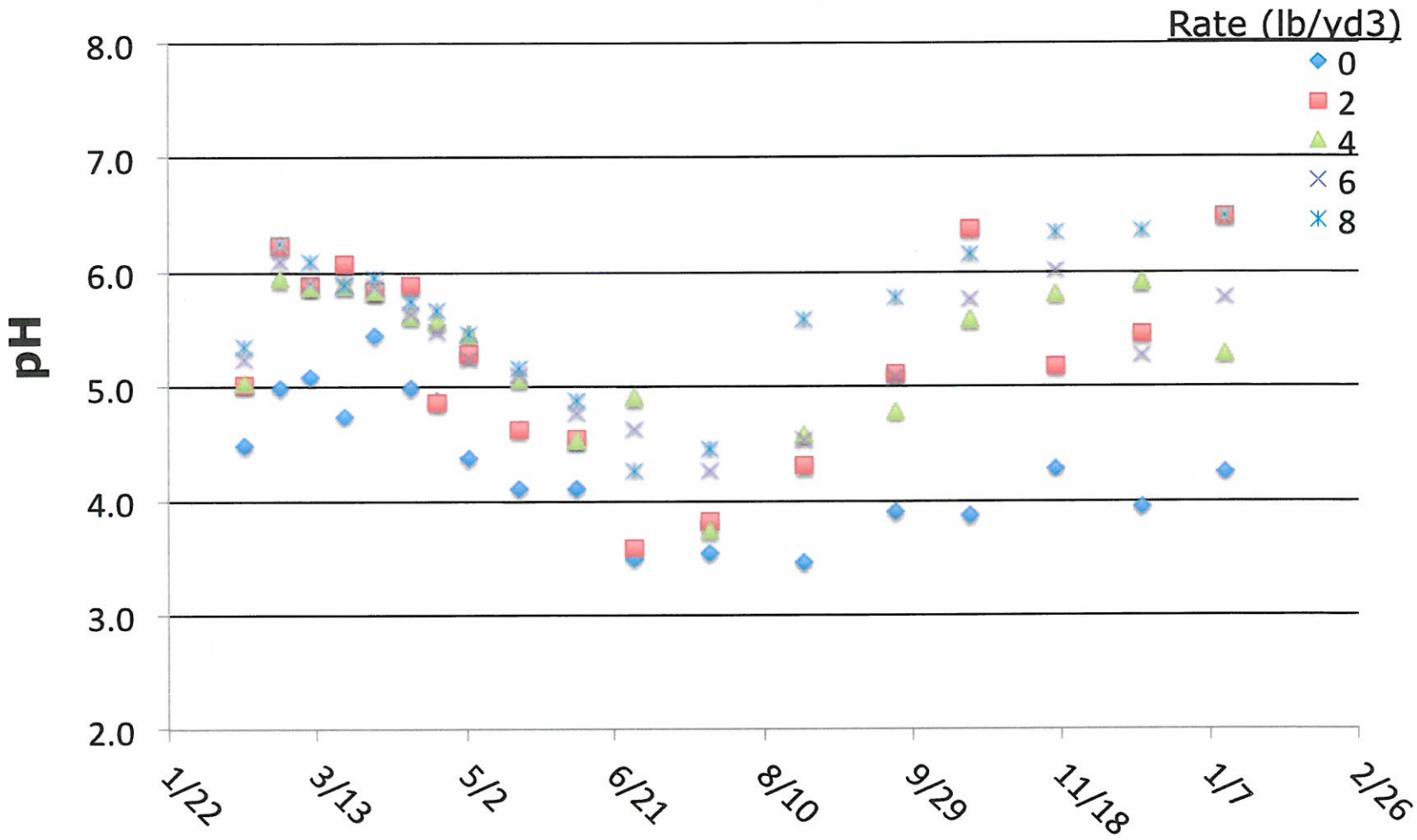

Dolomite 65
6.5
6.0
5.5
5.0
4.5
4.0
pH
Range
0
1
2
3
4
5
6
Fine dolomite (lb/yd³)


Rate (lb/yd3)
0
2
4
6
pH
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
5/17/09
7/6/09
8/25/09
10/14/09
12/3/09
1/22/10
3/13/10
5/2/10
6/21/10
8/10/10
9/29/10

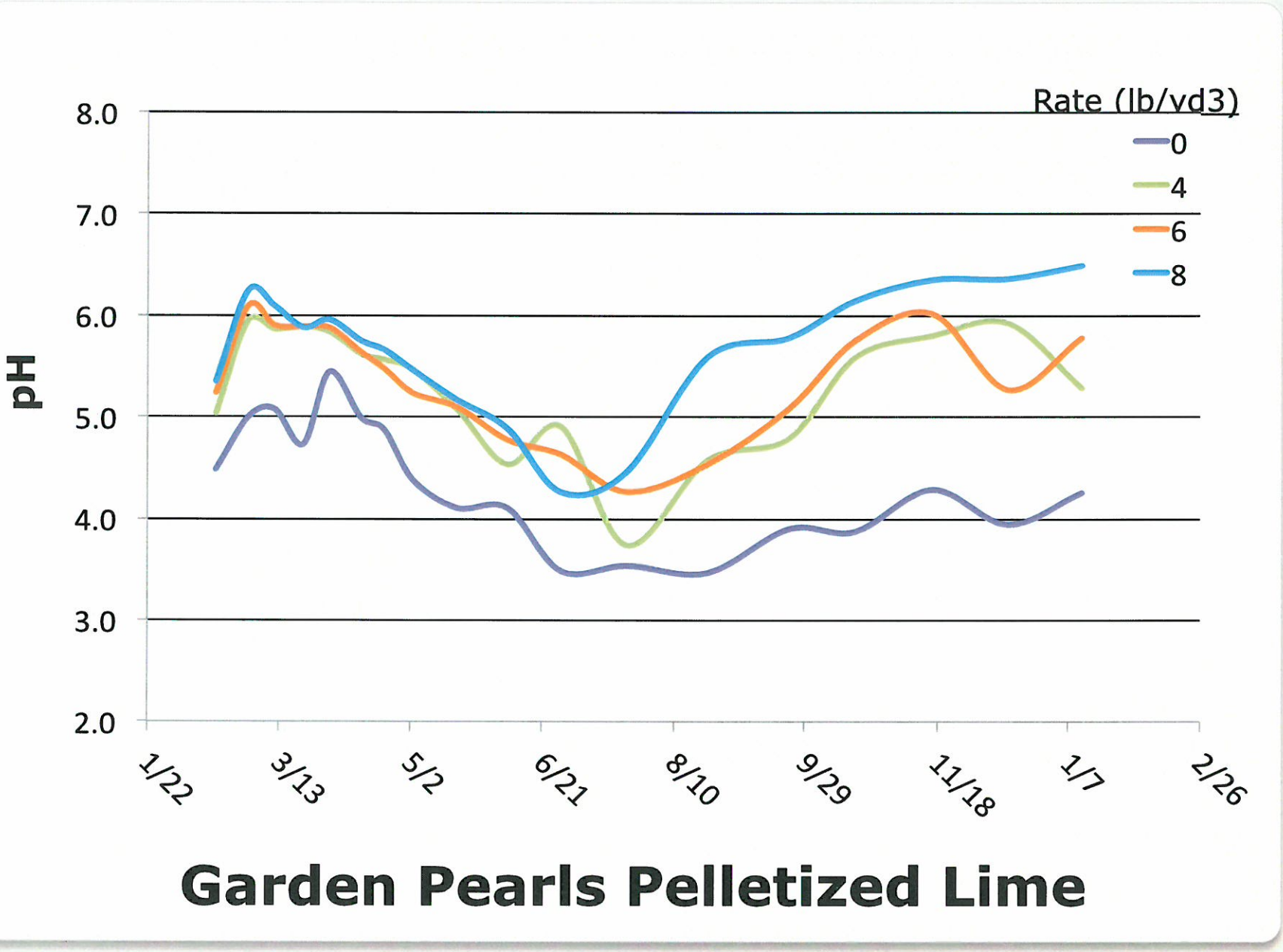
Dolomite 65

Garden Pearls Pelletized Lime

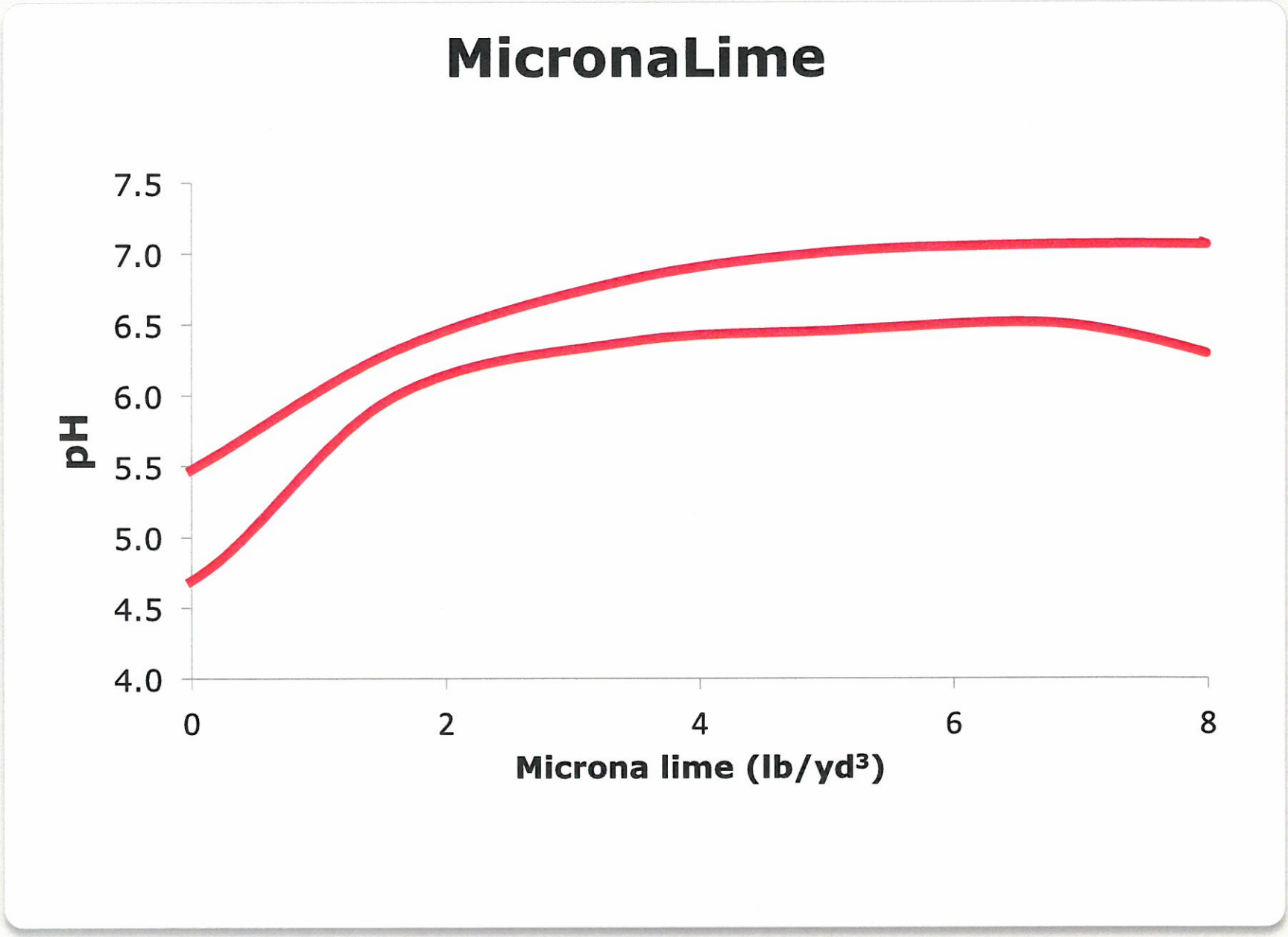


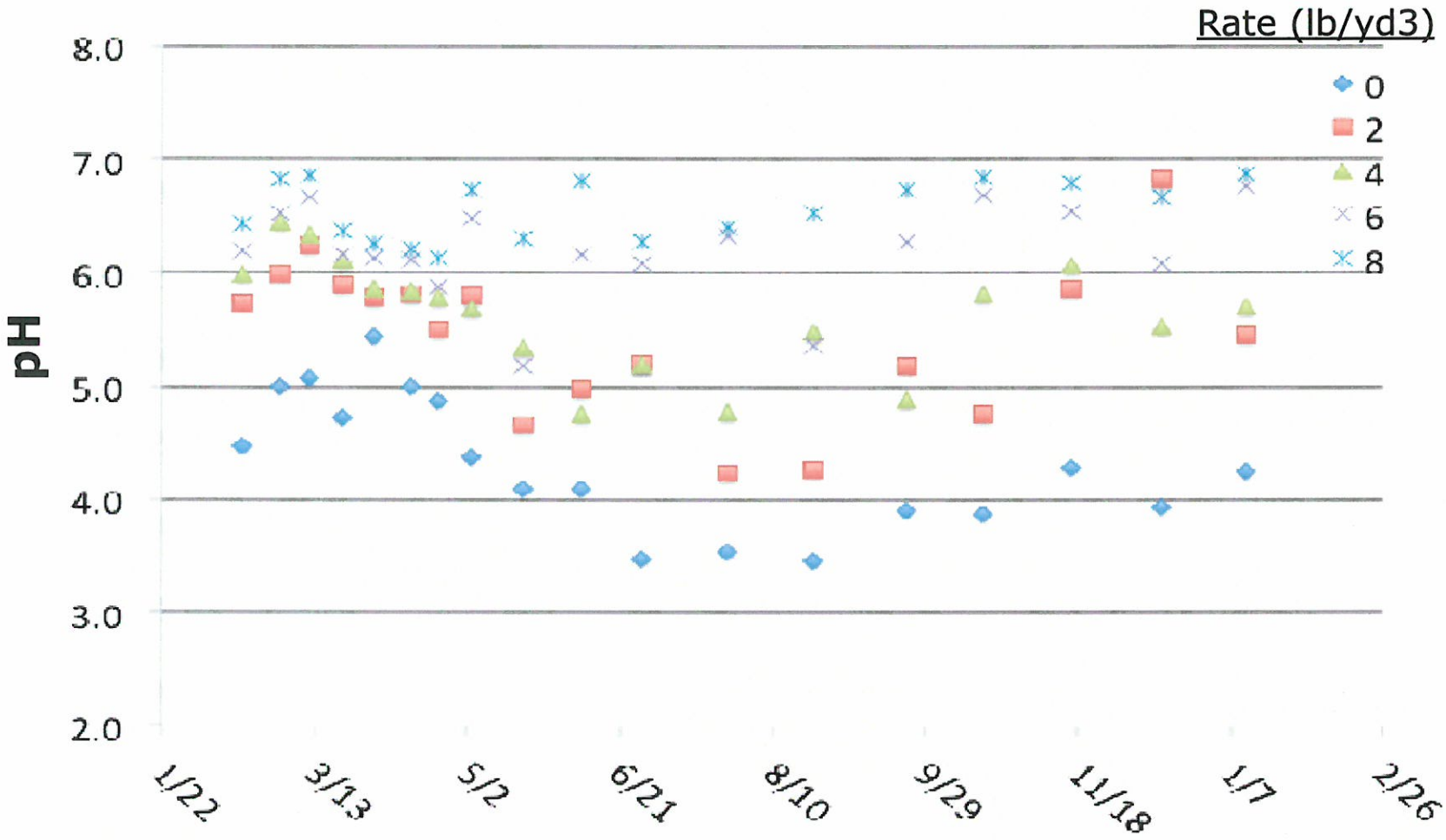


Garden Pearls Pelletized Lime

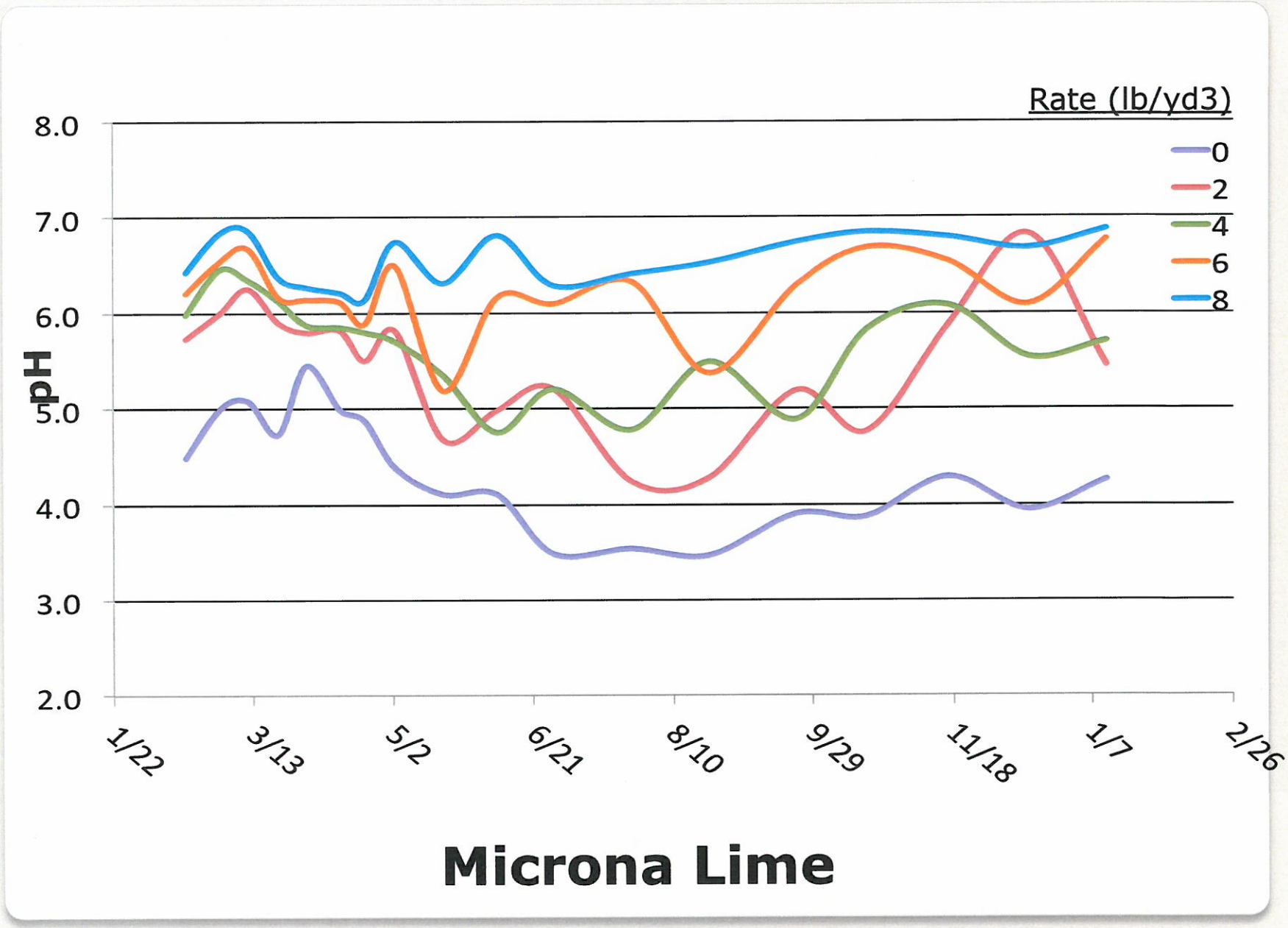


Garden Pearls Pelletized Lime

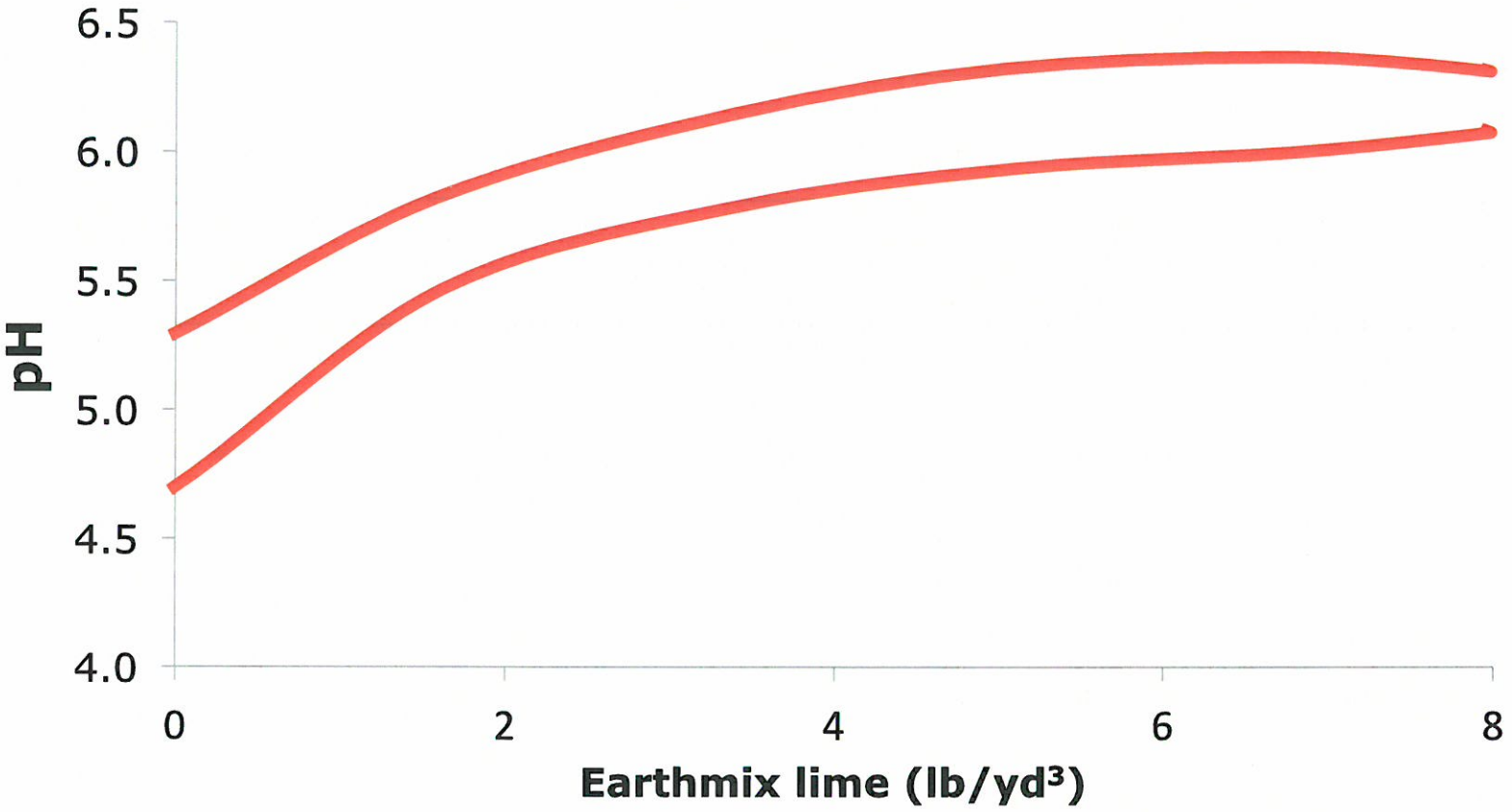

MicronaLime
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
pH
0
2
4
6
8
Microna lime (lb/yd³)

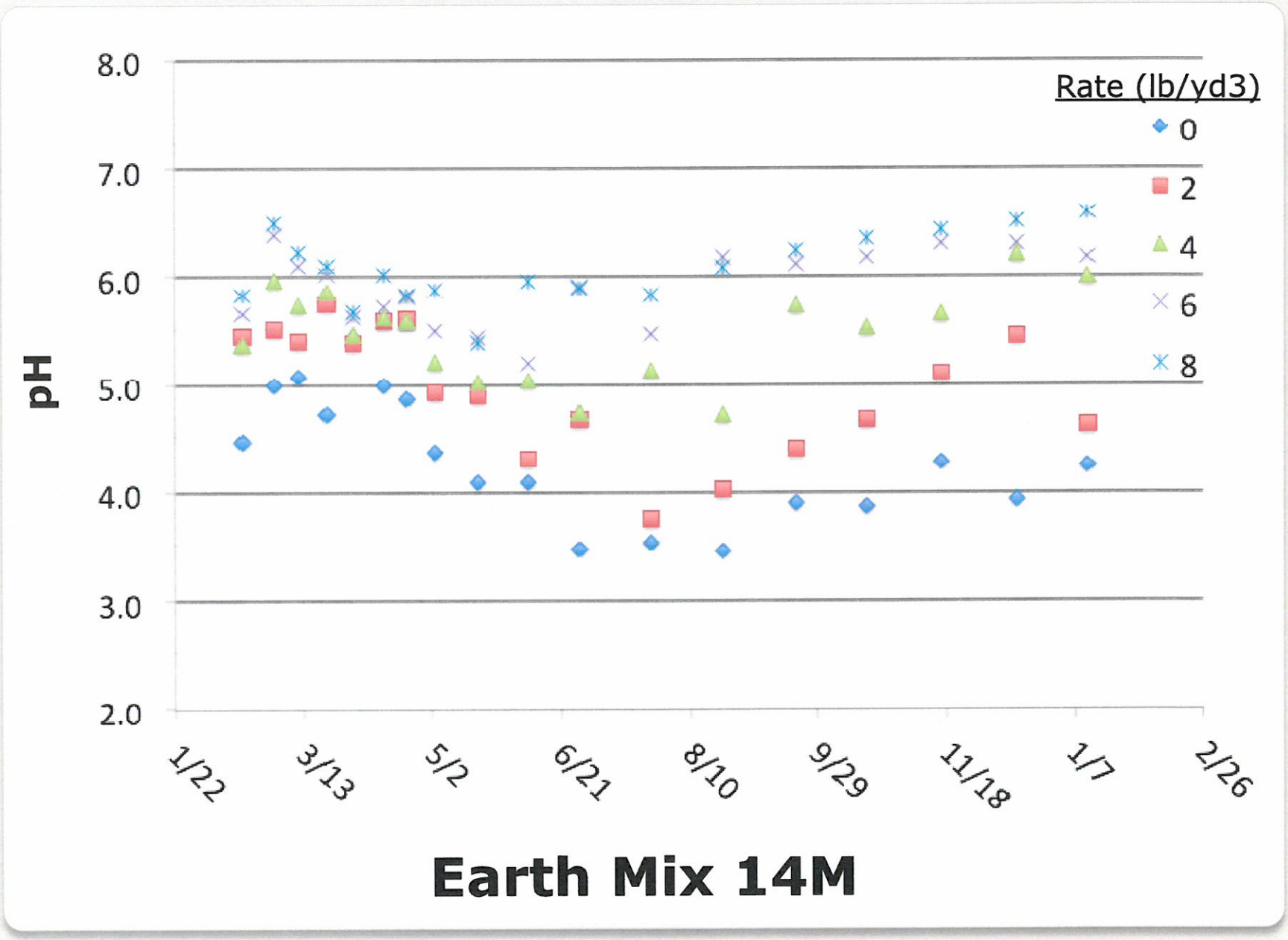


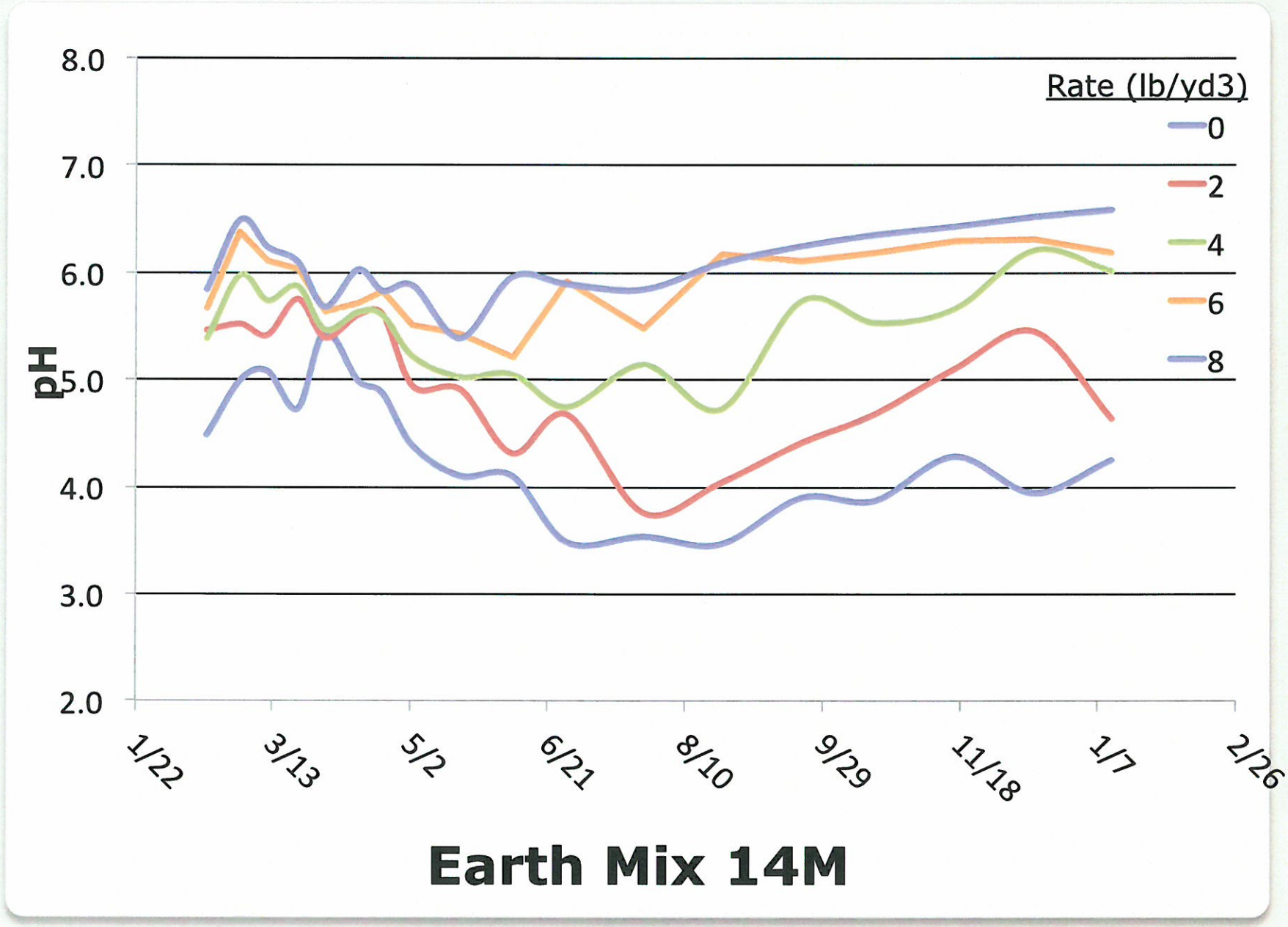
Microna Lime

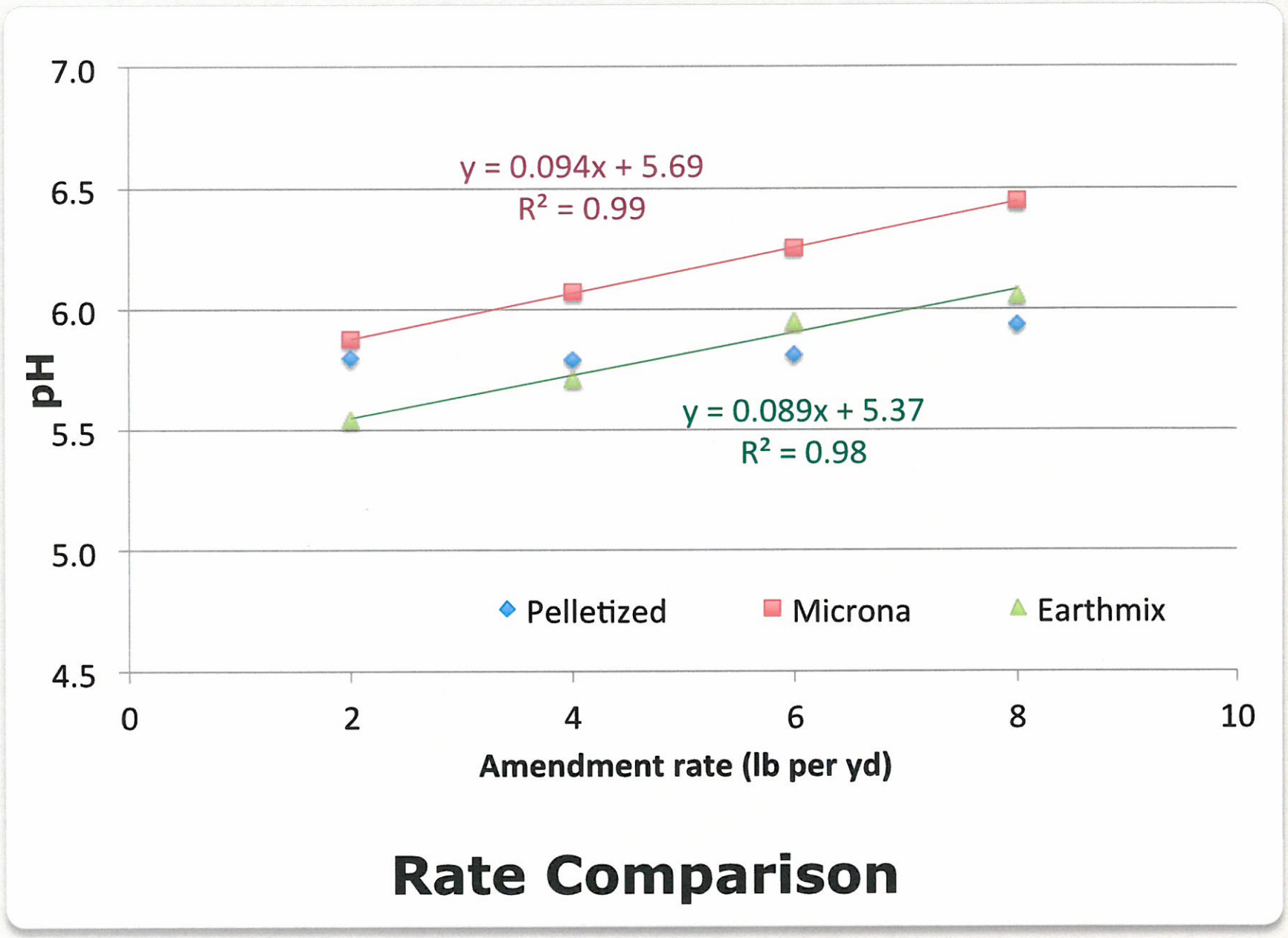

Rate (lb/yd3)
0
2
4
6
8
8.0
7.0
6.0
5.0
4.0
3.0
2.0
pH
1/22
3/13
5/2
6/21
8/10
9/29
11/18
1/7
2/26
Microna Lime

Earthmix Lime




8.0
7.0
6.0
5.0
4.0
3.0
2.0
pH
Rate (lb/yd3)
0
2
4
6
8
1/22
3/13
5/2
6/21
8/10
9/29
11/18
1/7
2/26
Earth Mix 14M


8.0
7.0
6.0
5.0
4.0
3.0
2.0
pH
Rate (lb/yd3)
0
2
4
6
8
1/22
3/13
5/2
6/21
8/10
9/29
11/18
1/7
2/26
Earth Mix 14M



Rate Comparison

Conclusions

- Guidelines only~
  - Remember other factors influence pH.
    - Alkalinity, Specific Crop, Media Components.



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