Table 1. Treatment rates and site maps.

1	No mulch + Control
2	No mulch + Compost
3	No mulch + CaNO$_3$
4	No mulch + (Compost + CaNO$_3$)
5	Mulch + Control
6	Mulch + Compost
7	Mulch + CaNO$_3$
8	Mulch + (Compost + CaNO$_3$)

Site plot plans (L to R): Winchester, VA; Thurmont, MD; Tyro, VA.

*Fertilizer rate 40 t/ha/year N applied in 2014. Fertilizer was not applied in subsequent years.
**Maps depict the experimental design. The number corresponds to the treatment; the letter corresponds to the replicated block.

Table 2. Trunk cross-sectional area (TCSA) in 2015 from a SSARE funded fertilizer study conducted at the Alson H. Smith, Jr. Agricultural Research and Extension Center in Winchester, VA.

Treatment	TCSA 2013 (cm^2)	TCSA 2014 (cm^2)	TCSA 2015 (cm^2)
No mulch + Control	0.9^z	1.2	3.1 bc
No mulch + Compost	0.9	1.2	2.9 c
No mulch + CaNO$_3$	0.9	1.2	3.2 abc
No mulch + (Compost + CaNO$_3$)	0.9	1.3	3.3 abc
Mulch + Control	0.9	1.3	4.0 a
Mulch + Compost	0.9	1.2	3.8 ab
Mulch + CaNO$_3$	0.9	1.3	3.8 ab
Mulch + (Compost + CaNO$_3$)	0.9	1.3	3.8 ab

^{z} Mean separation within column by Tukey's Honestly Significant Difference.

Table 3. Trunk cross-sectional area (TCSA) in 2015 from a SSARE funded fertilizer study conducted at Catoctin Mountain Orchards in Thurmont, MD.

Treatment	TCSA 2013 (cm^2)	TCSA 2014 (cm^2)	TCSA 2015 (cm^2)
No mulch + Control	1.1^z	1.7	3.2 bc
No mulch + Compost	1.1	1.8	3.1 c
No mulch + CaNO$_3$	1.1	1.8	3.3 abc
No mulch + (Compost + CaNO$_3$)	1.1	1.8	3.4 abc
Mulch + Control	1.0	1.7	3.8 abc
Mulch + Compost	1.0	1.8	3.9 a
Mulch + CaNO$_3$	1.1	1.8	3.9 ab
Mulch + (Compost + CaNO$_3$)	1.0	1.8	4.0 a

^{z} Mean separation within column by Tukey's Honestly Significant Difference.

Table 4. Trunk cross-sectional area (TCSA) in 2015 from a SSARE funded fertilizer study at Silver Creek Orchards in Tyro, VA.

Treatment	TCSA 2013 (cm^2)	TCSA 2014 (cm^2)	TCSA 2015 (cm^2)
No mulch + Control	1.5 ab [z]	1.5 b	2.5 b
No mulch + Compost	1.4 ab	1.7 ab	2.5 b
No mulch + $CaNO_3$	1.4 b	1.5 ab	2.6 b
No mulch + (Compost + $CaNO_3$)	1.6 ab	1.7 ab	2.9 ab
Mulch + Control	1.5 ab	1.8 ab	2.8 ab
Mulch + Compost	1.8 a	1.9 a	3.4 a
Mulch + $CaNO_3$	1.7 ab	1.9 ab	3.1 ab
Mulch + (Compost + $CaNO_3$)	1.5 ab	1.7 ab	3.2 a

[z] Mean separation within column by Tukey's Honestly Significant Difference.

Table 5. 2015 fruit yields from a SSARE funded fertilizer study conducted at Catoctin Mountain Orchards in Thurmont, MD.

Treatment	Yield (Fruit no. per tree)	Yield (kg per tree)	Crop Density (Fruit no. per TCSA)	Yield Efficiency (Fruit wt., kg per TCSA)
No mulch + Control	4.6 [z]	1.0	1.4	0.3
No mulch + Compost	7.6	1.6	2.5	0.5
No mulch + $CaNO_3$	6.5	1.3	2.0	0.4
No mulch + (Compost + $CaNO_3$)	6.4	1.4	1.9	0.4
Mulch + Control	5.0	1.1	1.4	0.3
Mulch + Compost	5.4	1.2	1.4	0.3
Mulch + $CaNO_3$	6.9	1.5	1.9	0.4
Mulch + (Compost + $CaNO_3$)	4.1	0.8	1.1	0.2

[z] Mean separation within column by Tukey's Honestly Significant Difference.

Table 6. 2015 soil analysis results from a SSARE funded fertilizer study conducted at the Alson H. Smith, Jr. Agricultural Research and Extension Center in Winchester, VA.

Treatment	Phosphorus (ppm)	Potassium (ppm)	Calcium (ppm)	Magnesium (ppm)	Zinc (ppm)	Manganese (ppm)	Copper (ppm)	Iron (ppm)	Boron (ppm)	Organic Matter (%)	Active Carbon (mg C/kg soil)	CEC (meq/100 g)
No mulch + Control	7.5 b^z	89.8 ab	578.8	91.3 ab	12.0	9.2 bc	1.0	6.4 b	0.3	2.1	355.8	4.4
No mulch + Compost	27.0 a	114.3 ab	700.3	108.3 a	13.5	10.0 abc	1.2	5.7 b	0.4	2.4	429.8	5.0
No mulch + CaNO$_3$	7.8 b	84.8 ab	624.5	74.0 b	10.7	8.6 c	0.7	6.0 b	0.3	2.0	395.4	4.4
No mulch + (Compost + CaNO$_3$)	21.5 ab	115.3 ab	616.0	80.8 ab	12.4	9.1 bc	1.0	6.4 b	0.4	2.2	448.2	4.7
Mulch + Control	7.0 b	92.8 ab	680.5	90.5 ab	9.1	12.6 abc	0.9	6.6 b	0.3	2.2	368.6	4.5
Mulch + Compost	32.3 a	117.3 ab	715.5	98.0 ab	13.0	14.2 ab	1.7	9.1 a	0.4	2.3	397.3	4.9
Mulch + CaNO$_3$	6.5 b	84.0 b	596.0	80.0 ab	8.4	11.7 abc	0.9	6.9 b	0.3	2.2	347.8	4.0
Mulch + (Compost + CaNO$_3$)	32.5 a	127.0 a	788.0	95.8 ab	10.4	14.7 a	0.8	6.3 b	0.4	2.4	438.3	5.2

^{z} Mean separation within column by Tukey's Honestly Significant Difference.

Table 7. 2015 soil analysis results from a SSARE funded fertilizer study conducted at Catoctin Mountain Orchards in Thurmont, MD.

Treatment	Phosphorus (ppm)	Potassium (ppm)	Calcium (ppm)	Magnesium (ppm)	Zinc (ppm)	Manganese (ppm)	Copper (ppm)	Iron (ppm)	Boron (ppm)	Organic Matter (%)	Active Carbon (mg C/kg soil)	CEC (meq/100 g)
No mulch + Control	268.5 ab^z	178.0 ab	3,380.0 a	203.8 a	16.7	26.9 a	0.4 ab	5.3 b	4.0	6.3 ab	1,035.3 ab	19.0 a
No mulch + Compost	290.5 ab	171.8 ab	3,120.3 ab	214.0 a	15.6	25.5 ab	0.4 ab	5.9 ab	4.0	6.1 ab	1,017.3 ab	17.8 ab
No mulch + CaNO$_3$	275.0 ab	182.3 ab	3,156.8 ab	200.3 a	14.7	26.3 a	0.4 ab	5.7 ab	4.0	5.7 ab	1,032.4 ab	17.9 ab
No mulch + (Compost + CaNO$_3$)	290.3 ab	194.0 a	3,049.0 ab	206.0 a	15.3	25.7 ab	0.4 ab	5.9 ab	4.0	6.1 ab	1,010.7 ab	17.4 ab
Mulch + Control	263.0 ab	141.5 c	3,049.3 ab	190.8 ab	11.9	26.0 ab	0.4 ab	6.4 ab	4.0	6.2 ab	1,122.4 a	17.1 ab
Mulch + Compost	288.5 ab	152.0 bc	3,036.5 ab	211.8 a	13.0	24.7 ab	0.4 ab	5.9 ab	4.0	6.2 ab	1,081.9 ab	17.3 ab
Mulch + CaNO$_3$	188.8 b	131.8 c	2,546.5 b	161.5 b	11.0	22.9 b	0.5 a	6.9 a	4.0	5.4 b	964.1 b	14.4 b
Mulch + (Compost + CaNO$_3$)	328.0 a	152.5 bc	3,167.5 ab	220.8 a	12.5	25.6 ab	0.3 b	6.3 ab	4.0	6.3 a	1,120.0 a	18.0 ab

^{z} Mean separation within column by Tukey's Honestly Significant Difference.

Table 8. 2015 soil analysis results from a SSARE funded fertilizer study conducted at Silver Creek Orchards in Tyro, VA.

Treatment	Phosphorus (ppm)	Potassium (ppm)	Calcium (ppm)	Magnesium (ppm)	Zinc (ppm)	Manganese (ppm)	Copper (ppm)	Iron (ppm)	Boron (ppm)	Organic Matter (%)	Active Carbon (mg C/kg soil)	CEC (meq/100 g)
No mulch + Control	37.5^z	86.0 b	2,063.0	94.8 cd	1.3 c	8.9	0.5	8.8	0.4 b	6.9	829.4	11.8
No mulch + Compost	107.8	117.8 ab	2,602.3	129.3 bcd	3.5 a	11.5	0.3	7.1	0.6 ab	6.9	845.4	14.7
No mulch + CaNO$_3$	44.0	84.0 b	2,752.5	89.3 d	1.5 bc	9.5	0.4	5.8	0.6 ab	7.3	903.3	14.7
No mulch + (Compost + CaNO$_3$)	77.0	110.0 ab	2,511.3	121.5 cd	3.3 a	10.9	0.3	7.5	0.6 ab	7.3	907.1	14.3
Mulch + Control	78.3	149.3 a	2,231.8	127.5 bcd	1.4 c	8.6	0.3	7.8	0.6 ab	7.1	882.6	12.7
Mulch + Compost	100.5	160.0 a	2,431.8	180.0 a	3.0 a	9.0	0.2	6.3	0.7 a	7.7	876.0	14.6
Mulch + CaNO$_3$	39.8	126.3 ab	2,234.0	133.3 bc	1.5 bc	9.7	0.5	8.8	0.6 ab	7.9	976.8	12.9
Mulch + (Compost + CaNO$_3$)	52.3	153.8 a	2,102.0	164.3 ab	2.9 ab	10.4	0.4	7.6	0.7 ab	7.2	890.1	12.6

^{z} Mean separation within column by Tukey's Honestly Significant Difference.