

Reduced Nitrogen (5 Trials)

Harvey Cairns

Trial 1 & 2

- Variety Russet Burbank
 - Regular Fertilizer Application
 - Fall Manure + 950 lbs/ac 15-19-23 + 100 lbs/ac 28-0-23 (170 lbs/ac N)
 - Reduced Nitrogen & Potassium
 - Fall Manure + 950 lbs/ac 15-19-23
 - (140 lbs/ac N) + for 1 & 2 fall manure and mixed forage plow down + Om 3%
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(Top) Fall Manure + 950 lbs/ac 15-19-23

(Bottom) Fall Manure + 950 lbs/ac 15-19-23 + 100 lbs/ac 28-0-23

Trial # 1 Russet Burbank

			Total Payout	
1409	VCH2LN	1 of 4	1409	\$2,591
1410	VCH2LN	2 of 4	1410	\$2,439
1411	VCH2LN	3 of 4	1411	\$1,936
1412	VCH2LN	4 of 4	1412	\$2,489
			Average	\$2,364
1413	VCH2HN	1 of 4	1413	\$2,629
1414	VCH2HN	2 of 4	1414	\$2,400
1415	VCH2HN	3 of 4	1415	\$2,070
1416	VCH2HN	4 of 4	1416	\$1,998
			Average	\$2,274

(Top) Fall Manure + 950 lbs/ac 15-19-23

(Bottom) Fall Manure + 950 lbs/ac 15-19-23 + 100 lbs/ac 28-0-23

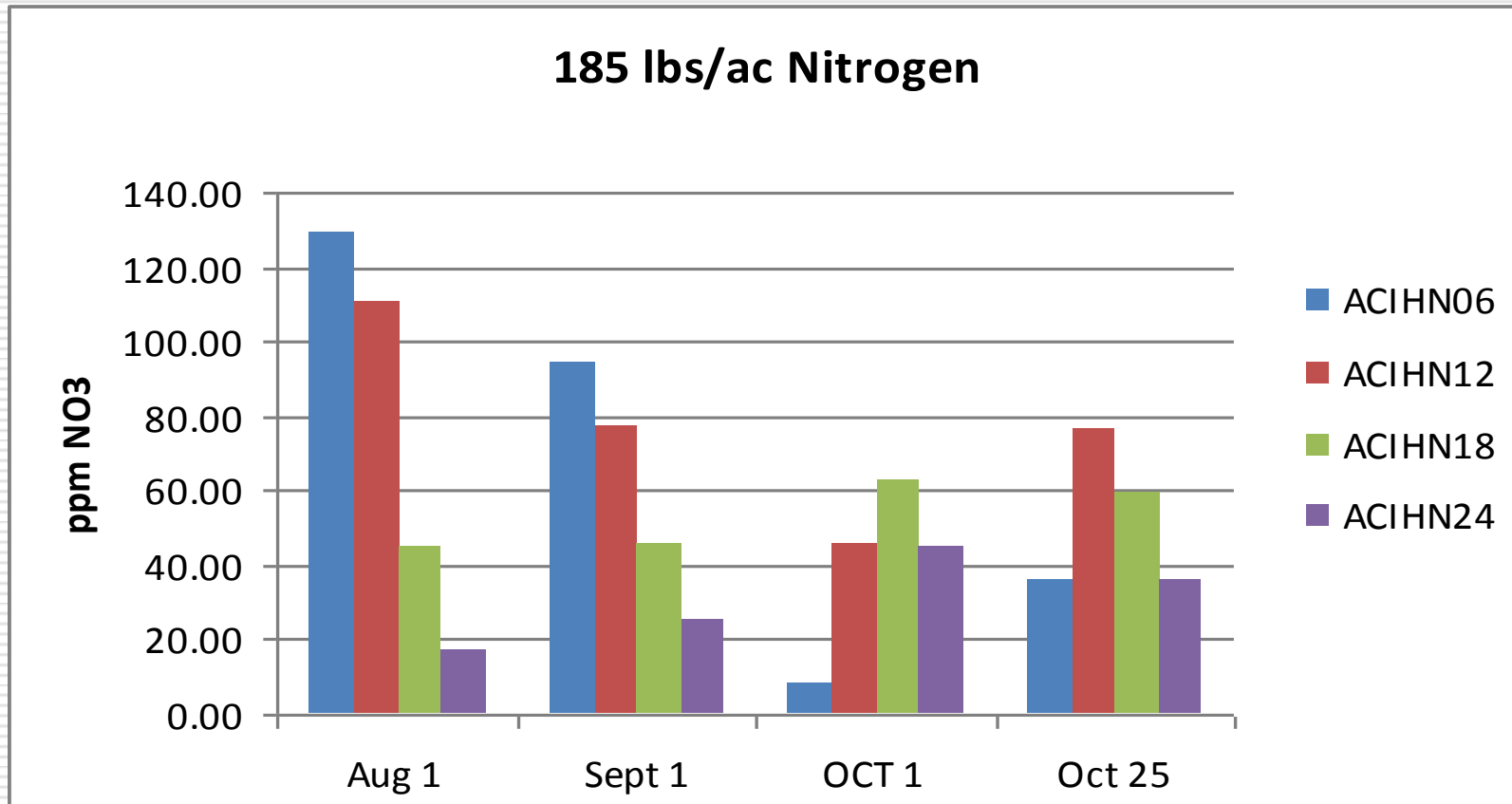
In ppm NO3 Nitrate

Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25	Total of
VCH2LN06	103.00	37.60	7.20	18.80	0 to 12"
VCH2LN12	61.40	35.50	32.00	42.90	Average
Average 0 to 12"	82.20	36.55	19.60	30.85	169.20
Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25	Total of
VCH2LN18	28.80	17.80	32.80	34.50	12 to 24"
VCH2LN24	20.00	6.80	16.60	21.20	Average
Average 12 to 24"	24.40	12.30	24.70	27.85	89.25

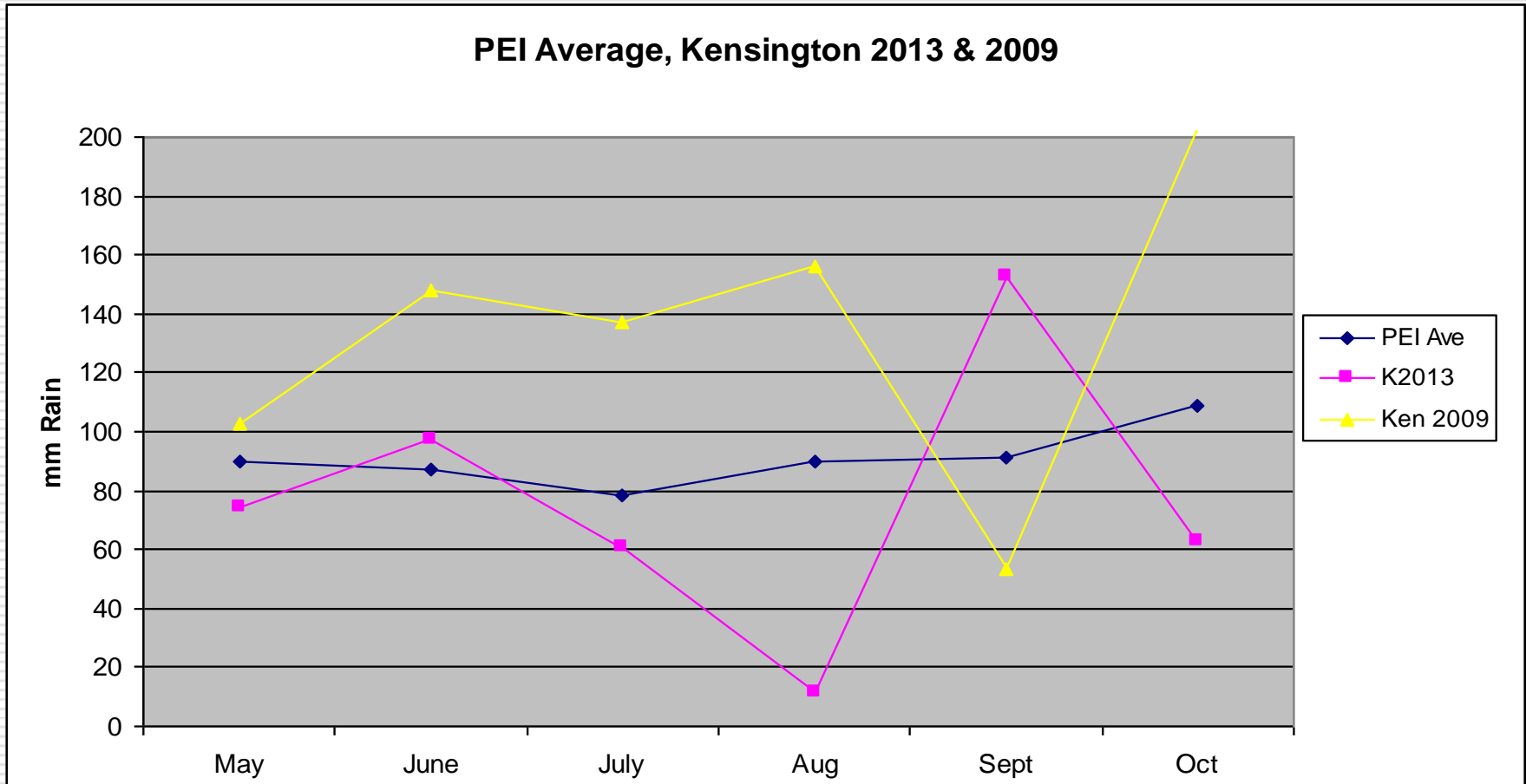
Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25	Total of
VCH2HN06	108.10	67.10	14.40	26.30	0 to 12"
VCH2HN12	50.40	69.60	49.70	42.60	Average
Average 0 to 12"	79.25	68.35	32.05	34.45	214.10
Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25	Total of
VCH2HN18	32.50	31.60	49.70	37.00	12 to 24"
VCH2HN24	17.40	16.60	38.40	23.10	Average
Average 12 to 24"	24.95	24.10	44.05	30.05	123.15

Graph For

(Bottom) Fall Manure + 950 lbs/ac 15-19-23 + 100 lbs/ac 28-0-23
In ppm NO3 Nitrate



Rainfall can make a big difference in soil nitrate



(Top) Fall Manure + 950 lbs/ac 15-19-23

(Bottom) Fall Manure + 950 lbs/ac 15-19-23 + 100 lbs/ac 28-0-23

Trial # 2 Russet Burbank

					Total Payout
1401	VCH1LN	1 of 4	1401		\$2,443
1402	VCH1LN	2 of 4	1402		\$2,726
1403	VCH1LN	3 of 4	1403		\$1,948
1404	VCH1LN	4 of 4	1404		\$2,160
				Average	\$2,319
1405	VCH1HN	1 of 4	1405		\$1,521
1406	VCH1HN	2 of 4	1406		\$1,591
1407	VCH1HN	3 of 4	1407		\$1,842
1408	VCH1HN	4 of 4	1408		\$2,010
				Average	\$1,741

(Top) Fall Manure + 950 lbs/ac 15-19-23

(Bottom) Fall Manure + 950 lbs/ac 15-19-23 + 100 lbs/ac 28-0-23

Trial # 2 Russet Burbank

- Why the difference ????????????????
- Sugar ends 8 % vers 0 %
- Scab 5 % vers 0 %
- Size > 10 oz, 42 CWT/ac vers 80 CWT/ac
- Specific Gravity 1.073 vers 1.082

Top) Fall Manure + 950 lbs/ac 15-19-23

(Bottom) Fall Manure + 950 lbs/ac 15-19-23 + 100 lbs/ac 28-0-23 ppm NO3

Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25
VCH1LN06	89.20	38.00	14.50	23.40
VCH1LN12	44.20	35.80	48.90	67.10
Average 0 to 12"	66.70	36.90	31.70	45.25
Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25
VCH1LN18	15.50	16.20	48.60	64.40
VCH1LN24	22.50	9.30	29.10	46.00
Average 12 to 24"	19.00	12.75	38.85	55.20

Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25
VCH1HN06	129.90	68.60	9.80	27.20
VCH1HN12	73.30	60.10	29.20	60.70
Average 0 to 12"	101.60	64.35	19.50	43.95
Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25
VCH1HN18	45.10	33.40	76.00	59.10
VCH1HN24	24.60	12.70	51.00	58.40
Average 12 to 24"	34.85	23.05	63.50	58.75

Trial 3 & 4

- ❑ Variety: Ranger Russets
- ❑ Mixed forage plow down
- ❑ 1200 lbs/ac 14-15-20
- ❑ 170 lbs/ac Nitrogen

Ranger Russets Trial 3

170 lbs/ac Nitrogen (Top)

155 lbs/ac Nitrogen (Bottom)

					Total Payout
1417	SV1041LN	1 of 4	1417		\$3,035
1418	SV1041LN	2 of 4	1418		\$2,549
1419	SV1041LN	3 of 4	1419		\$3,309
1420	SV1041LN	4 of 4	1420		\$2,829
				Average	\$2,931
1421	SV1041HN	1 of 4	1421		\$2,687
1422	SV1041HN	2 of 4	1422		\$2,626
1423	SV1041HN	3 of 4	1423		\$2,631
1424	SV1041HN	4 of 4	1424		\$2,377
				Average	\$2,580

Ranger Russets Trial 3 ppm NO3

170 lbs/ac Nitrogen (Top)

155 lbs/ac Nitrogen (Bottom)

Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25
SV104BLN06	35.30	27.90	10.90	21.80
SV104BLN12	32.80	22.80	15.90	18.90
Average 0 to 12"	34.05	25.35	13.40	20.35
SV104BLN18	14.70	18.90	16.30	11.60
SV104BLN24	9.50	14.40	12.20	7.70
VCH1LN24	22.50	9.30	29.10	46.00
Average 12 to 24"	16.00	11.85	20.65	26.85

Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25
SV104BHN06	82.50	15.10	7.70	21.80
SV104BHN12	45.70	19.80	16.70	25.40
Average 0 to 12"	64.10	17.45	12.20	23.60
	Aug 1	Sept 1	OCT 1	Oct 25
SV104BHN18	25.80	12.50	16.70	13.40
SV104BHN24	14.30	9.90	11.20	6.60
Average 12 to 24"	20.05	11.20	13.95	10.00

Ranger Russets Trial 4

170 lbs/ac Nitrogen (Top)

155 lbs/ac Nitrogen (Bottom)

					Total Payout
1425	SV1042LN	1 of 4	1425		\$1,386
1426	SV1042LN	2 of 4	1426		\$2,508
1427	SV1042LN	3 of 4	1427		\$725
1428	SV1042LN	4 of 4	1428		\$2,017
				Average	\$1,659
1429	SV1042HN	1 of 4	1429		\$1,807
1430	SV1042HN	2 of 4	1430		\$1,597
1431	SV1042HN	3 of 4	1431		\$1,552
1432	SV1042HN	4 of 4	1432		\$1,518
				Average	\$1,619

Ranger Russets Trial 4 ppm NO3

170 lbs/ac Nitrogen (Top)

155 lbs/ac Nitrogen (Bottom)

Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25
SV104CLN06	43.30	29.30	3.70	21.90
SV104CLN12	44.30	26.90	11.10	23.40
Average 0 to 12"	43.80	28.10	7.40	22.65
Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25
SV104CLN18	23.30	29.20	17.10	15.90
SV104CLN24	12.30	19.70	12.70	12.10
Average 12 to 24"	17.80	24.45	14.90	14.00

Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25
SV104CHN06	38.60	59.80	7.90	19.70
SV104CHN12	15.30	37.30	18.20	28.30
Average 0 to 12"	26.95	48.55	13.05	24.00
Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25
SV104CHN18	67.20	35.50	23.60	17.80
SV104CHN24	69.30	29.10	11.60	10.50
Average 12 to 24"	68.25	32.30	17.60	14.15

Russet Burbank (Trial 5)

185 lbs/ac Nitrogen (Top)

170 lbs/ac Nitrogen (Bottom)

					Total Payout
1433	ACILN	1 of 4	1433		\$2,853
1434	ACILN	2 of 4	1434		\$2,514
1435	ACILN	3 of 4	1435		\$2,862
1436	ACILN	4 of 4	1436		\$2,724
				Average	\$2,738
1437	ACIHN	1 of 4	1437		\$2,466
1438	ACIHN	2 of 4	1438		\$2,785
1439	ACIHN	3 of 4	1439		\$2,809
1440	ACIHN	4 of 4	1440		\$2,901
				Average	\$2,740

Russet Burbank (Trial 5) ppm NO3

170 lbs/ac Nitrogen (Top)

185 lbs/ac Nitrogen (Bottom)

Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25
ACILN06	89.20	42.60	9.20	44.00
ACILN12	134.70	55.30	38.40	50.30
Average 0 to 12"	111.95	48.95	23.80	47.15
Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25
ACILN18	34.10	34.70	51.30	37.50
ACILN24	19.70	13.80	38.10	23.30
Average 12 to 24"	26.90	24.25	44.70	30.40

Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25
ACIHN06	129.40	94.40	7.90	35.70
ACIHN12	110.90	77.20	45.60	76.50
Average 0 to 12"	120.15	85.80	26.75	56.10
Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25
ACIHN18	44.40	45.40	63.00	59.80
ACIHN24	17.10	25.50	45.00	35.70
Average 12 to 24"	30.75	35.45	54.00	47.75

Russet Burbank (Trial 6)

185 lbs/ac Nitrogen (Top) {Irrigation}

185 lbs/ac Nitrogen (Bottom) {No Irrigation}

					Total Payout
1437	ACIHN	1 of 4	1437		\$2,466
1438	ACIHN	2 of 4	1438		\$2,785
1439	ACIHN	3 of 4	1439		\$2,809
1440	ACIHN	4 of 4	1440		\$2,901
				Average	\$2,740

1445	ACNIHN	1 of 4	1445		\$2,778
1446	ACNIHN	2 of 4	1446		\$2,210
1447	ACNIHN	3 of 4	1447		\$2,348
1448	ACNIHN	4 of 4	1448		\$2,494
				Average	\$2,458

Russet Burbank (Trial 6) ppm NO3

185 lbs/ac Nitrogen (Top) {Irrigation}

185 lbs/ac Nitrogen (Bottom) {No Irrigation}

Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25
ACIHN06	129.40	94.40	7.90	35.70
ACIHN12	110.90	77.20	45.60	76.50
Average 0 to 12"	120.15	85.80	26.75	56.10
	Aug 1	Sept 1	OCT 1	Oct 25
ACIHN18	44.40	45.40	63.00	59.80
ACIHN24	17.10	25.50	45.00	35.70
Average 12 to 24"	30.75	35.45	54.00	47.75

Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25
ACNIHN06		121.30	10.60	53.60
ACNIHN12		101.90	62.30	97.30
Average 0 to 12"		111.60	36.45	75.45
	Aug 1	Sept 1	OCT 1	Oct 25
ACNIHN18		83.60	88.90	60.10
ACNIHN24		72.20	103.50	48.70
Average 12 to 24"		77.90	96.20	54.40

Two Fields Prospects ppm NO3

130lbs/ac Nitrogen

Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25
VCFR06	8.60	3.00	5.50	9.10
VCFR12	8.90	1.60	6.30	8.30
Average 0 to 12"	8.75	2.30	5.90	8.70
	Aug 1	Sept 1	OCT 1	Oct 25
VCFR18	4.20	1.40	6.90	7.20
VCFR24	5.60	1.10	4.20	4.20
Average 12 to 24"	4.90	1.25	5.55	5.70

Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25
TCRte2006	11.00	13.30	6.80	7.70
TCRte2012	8.60	7.30	11.30	12.60
Average 0 to 12"		10.30	9.05	10.15
	Aug 1	Sept 1	OCT 1	Oct 25
TCRte2018	4.50	4.60	10.50	8.60
TCRte2024	5.40	3.10	5.50	5.80
Average 12 to 24"		3.85	8.00	7.20

Two Fields Russet Burbank ppm NO3

185 lbs/ac Nitrogen (After Ryegrass)

Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25
TCSV06	4.60	2.40	6.30	11.90
TCSV12	7.20	3.30	9.90	13.30
Average 0 to 12"	5.90	2.85	8.10	12.60
	Aug 1	Sept 1	OCT 1	Oct 25
TCSV18	7.10	4.00	7.30	6.40
TCSV24	3.90	2.90	3.20	3.50
Average 12 to 24"	5.50	3.45	5.25	4.95

Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25
TC101F06	4.80	1.70	1.90	7.60
TC101F12	10.30	2.60	3.30	8.90
Average 0 to 12"		2.15	2.60	8.25
	Aug 1	Sept 1	OCT 1	Oct 25
TC101F18	8.20	4.80	3.40	7.80
TC101F24	3.40	9.90	2.70	6.20
Average 12 to 24"		7.35	3.05	7.00

Two Fields Russet Burbank ppm NO3 180 lbs/ac Nitrogen (After Mixed Forage)

Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25
ACGM06	179.20	107.40	35.30	83.50
ACGM12	131.60	97.60	62.10	71.00
Average 0 to 12"	155.40	102.50	48.70	77.25
	Aug 1	Sept 1	OCT 1	Oct 25
ACGM18	36.90	57.80	44.00	38.40
ACGM24	15.20	38.60	20.20	18.40
Average 12 to 24"	26.05	48.20	32.10	28.40

Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25
ACHCRd06	157.70	130.30	59.00	56.50
ACHCRd12	86.10	118.60	111.00	108.30
Average 0 to 12"		124.45	85.00	82.40
	Aug 1	Sept 1	OCT 1	Oct 25
ACHCRd18	48.40	108.10	117.00	93.20
ACHCRd24	15.90	67.70	61.50	52.40
Average 12 to 24"		87.90	89.25	72.80

Two Fields Shepody ppm NO3

150 Lbs/ac Nitrogen (After Mixed Forage)

Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25
SV101AC06	27.90	7.90	4.20	20.90
SV101AC12	32.50	6.90	8.60	14.00
Average 0 to 12"	30.20	7.40	6.40	17.45
	Aug 1	Sept 1	OCT 1	Oct 25
SV101AC18	11.80	5.90	14.10	13.60
SV101AC24	8.40	6.60	12.20	11.30
Average 12 to 24"	10.10	6.25	13.15	12.45

Sample Depth	Aug 1	Sept 1	OCT 1	Oct 25
SVLMRd06	35.30	26.80	6.80	18.50
SVLMRd12	40.00	14.50	13.60	25.30
Average 0 to 12"		20.65	10.20	21.90
	Aug 1	Sept 1	OCT 1	Oct 25
SVLMRd18	17.90	11.70	29.60	19.30
SVLMRd24	10.60	8.30	16.90	12.50
Average 12 to 24"		10.00	23.25	15.90

Questions????

Thank you