Nitrate leaching and irrigation management in agriculture

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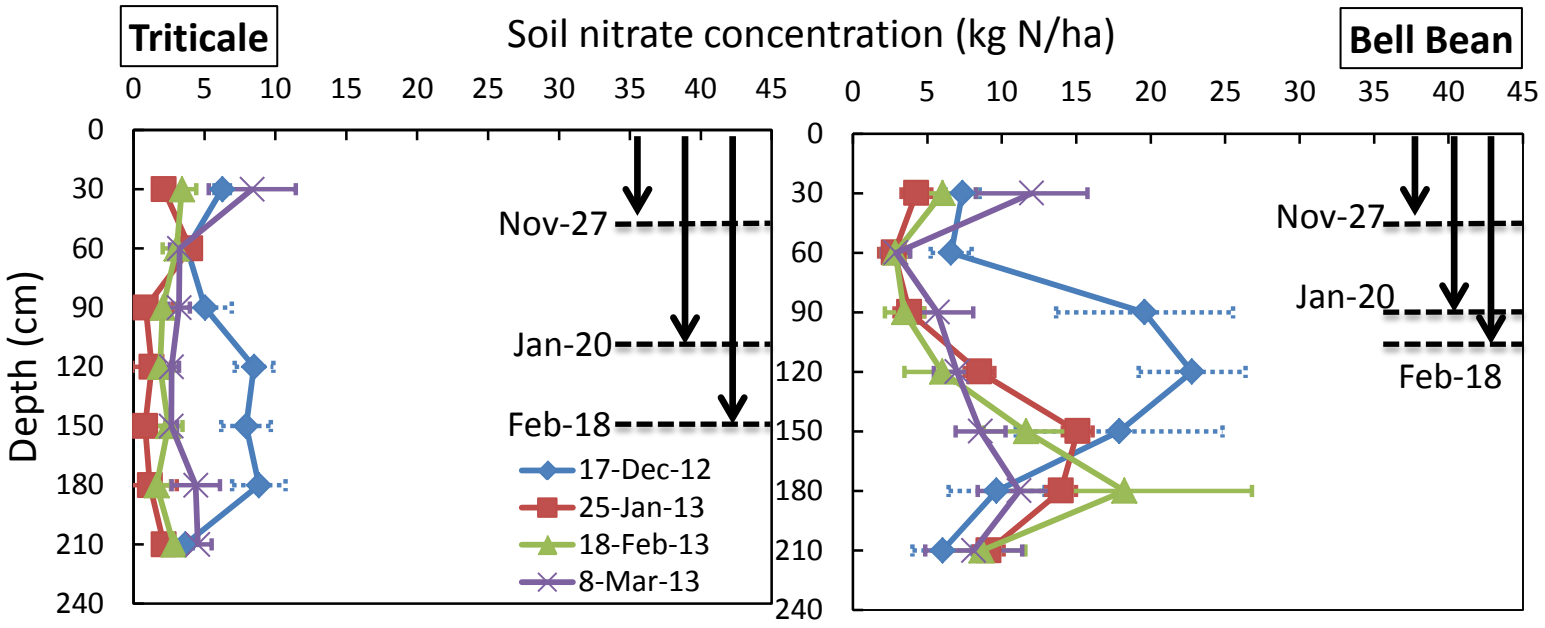
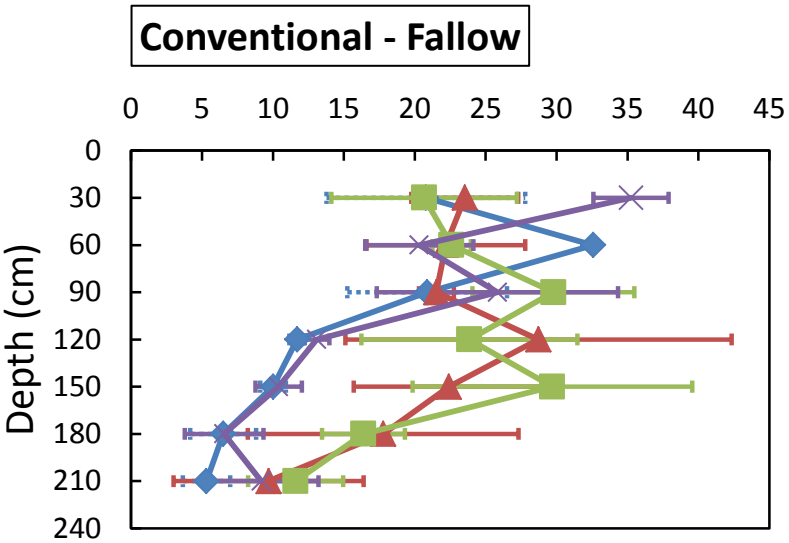
Cover Crop Yields and Nitrogen Content 2009-2013

Year		Dry weight	N content	Planting Date	Termination	Growing Degree Days	Water inputs
		kg ha^{-1}	kg N ha^{-1}				inches
2009-10	Triticale	584 (±148)	14.1 (±3.5)	Nov 18	Feb 18	29	9.6
	Bell beans, vetch, oats	910 (±79)	25.0 (±2.8)	Nov 18	March 25	66	12.4
2010-11	Triticale	771 (±22)	27.0 (±0.7)	Nov 18	Feb 22	35	10.4
	Bell beans, vetch, oats	1986 (±151)	52.7 (±2.7)	Nov 18	April 5	110	17.0
2011-12	Triticale	2655 (±248)	61.1 (±5.8)	Nov 4	March 22	88	6.1
	Bell beans	3224 (±157)	81.7 (±2.2)	Nov 4	March 22	88	6.1
2012-13	Triticale	3155 (±225)	58.5 (±3.2)	Oct 19	Feb 22	181	12.8*
	Bell beans	5610 (±40)	182.6 (±4.5)	Oct 19	Feb 22	181	12.8*

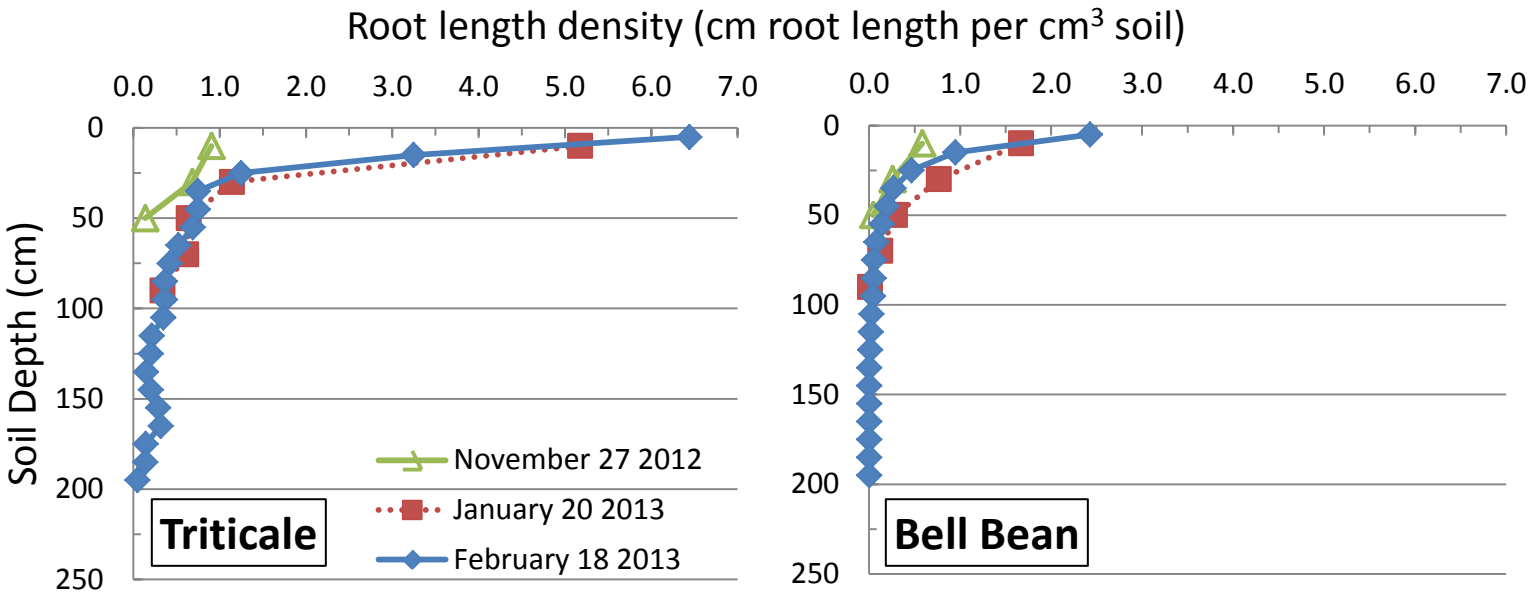
* includes 2.8 inches irrigation to establish cover crops





Soil nitrate concentration with depth at four dates during the 2012-2013 winter. The dashed lines show the maximum rooting depth for each species at three dates.

Overall, soil nitrate concentrations were reduced to a greater extent in the triticale treatment than in the bell bean treatment.



- Triticale roots grew deeper and were more dense than bell bean roots.
- 95% of triticale roots were in 0-150 cm
- 95% of bell bean roots were in 0-60 cm