A COST BENEFIT ANALYSIS OF SELECTED NITROGEN FERTILIZER TREATMENTS FOR COMMERCIAL POTATO PRODUCTION

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Based on field research conducted at Alberta Irrigation Technology Centre (AITC), Lethbridge, AB, by Michele Konshuch, Alberta Agriculture and Forestry

The profitability of 11 different nitrogen treatments were examined based on the results of a four-year research study conducted at AITC, Lethbridge, AB from 2014-2017.

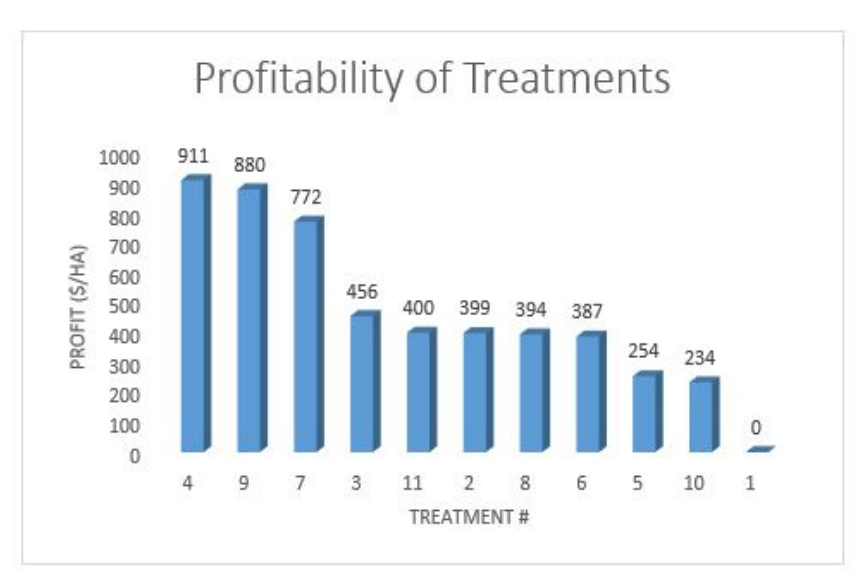

Figure 1. This graph displays the treatments ranked from highest profitability to lowest.

Treatment #	Description
1	Check
2	Urea pre-plant
3	Urea split
4	Urea/ESN split
5	ESN + Fertigation
6	ESN pre-plant
7	Urea/ESN pre-plant
8	Pre-plant Urea + fertigation
9	Urea/ESN split + fertigation
10	Urea/ESN pre-plant + fertigation
11	Urea/ESN @ hilling

TOP RANKED

Using a cost-benefit analysis of the study data, the most beneficial treatment was Treatment 4 - **Urea/ESN split**, where 60% N applied as urea pre-plant and 40% N applied as ESN (slow release polymer coated urea) at the time of hilling.

Following closely behind is Treatment 9 - Urea/ESN split + fertigation. Treatment 7 - Urea/ESN pre-plant came in third.

The lowest ranked treatment is the control treatment, which reaffirms the **importance of N fertilization** for commercial potato production.

Ranked by timing, split treatments (pre-plant + hilling) averaged about **twice the return** of pre-plant and fertigation treatments.

Ranked by type of fertilizer, returns for Urea/ESN combinations averaged $699/ha, **more than twice the returns** for ESN alone ($321/ha) or Urea alone ($316/ha).

Based on these data and assumptions, the application of 60% of N as Urea at time of planting, followed by the application of 40% of recommended N as ESN at hilling is expected to result in the highest producer returns.

The economics of fertigation, a common industry practice, are not apparent.

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