

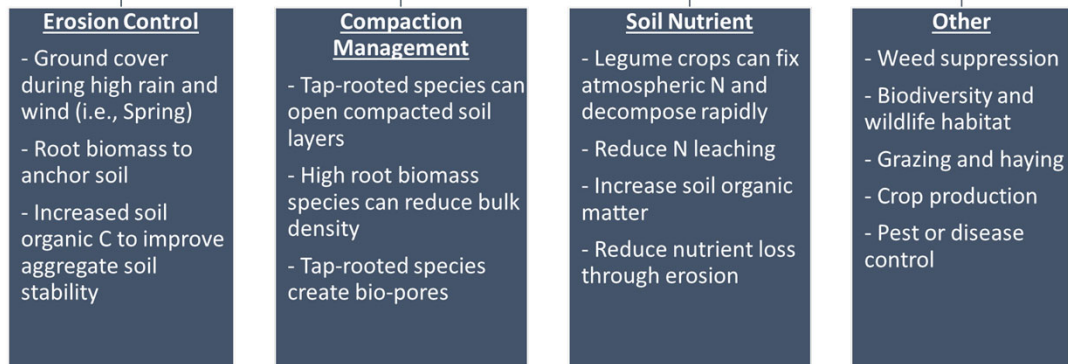
# **Oat Forage Seeding Rate x N Rate**

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## Potential benefits for cover or forage crops



Blanco-Canqui et al. 2015. Cover Crops and Ecosystem Services: Insights from Studies in Temperate Soils.

## Cool-season annual forage in a wheat rotation

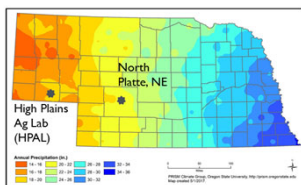
↓ Reduced soil moisture availability at planting (Nielsen et al. 2015)

↓ 10 % less wheat yield compared to fallow (Nielsen et al. 2016)

↑ Increased net returns (Lyon et al. 2004, Holman et al. 2018)

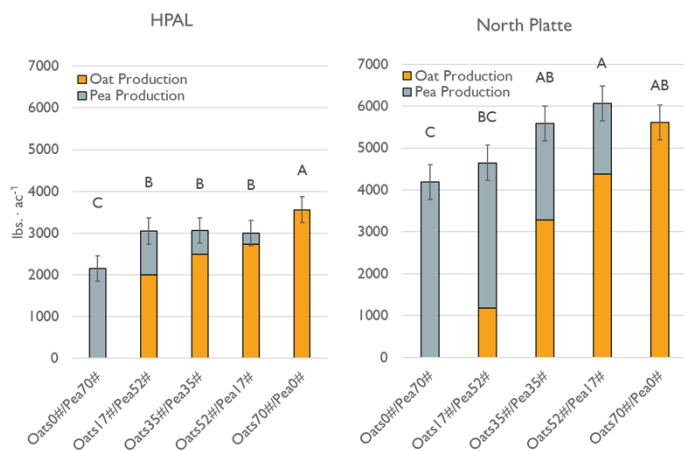
*“Growing a forage crop in wet years and using fallow in dry years (i.e., “flex-fallow”) would provide the highest returns.” (Holman et al. 2018)*

## Comparison of oat/spring pea forage mixtures (2017 and 2018)



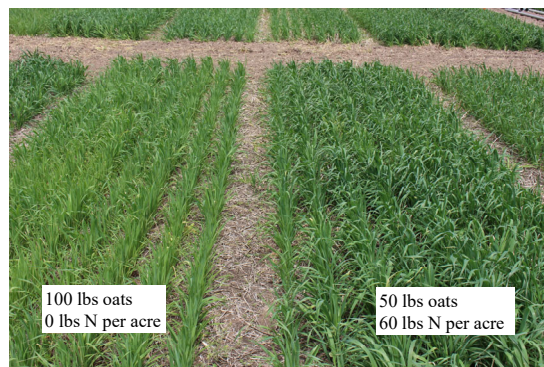
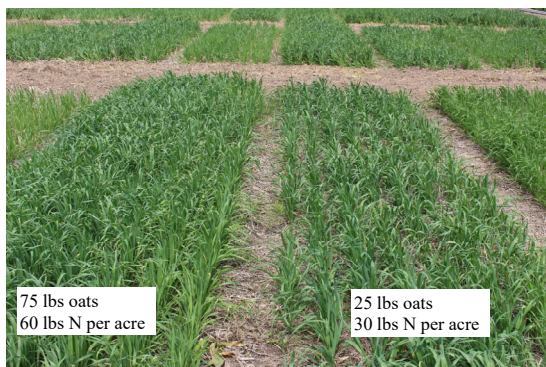
### Treatment seeding rates

	Oats	Peas	Seed Cost
1.	70 #	0 #	\$14.00
2.	52.5 #	17.5 #	\$17.15
3.	35 #	35 #	\$20.30
4.	17.5 #	52.5 #	\$23.45
5.	0 #	70 #	\$26.60



Pflueger et al. 2020 – Influence of oat and spring pea mixtures on forage characteristics

**Objective: Identify optimal seeding rate and N application for spring planted oats**



## Oats as Forage

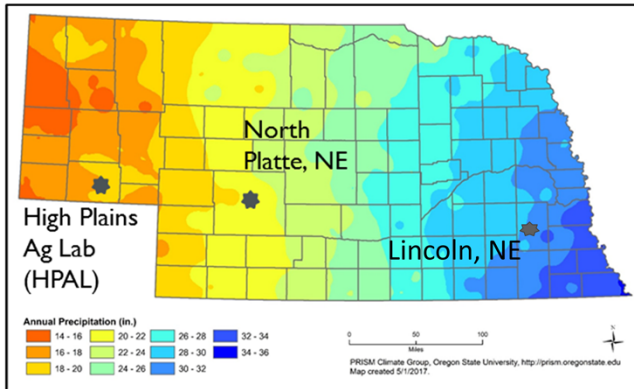
- Easy to establish
- Grows rapidly
- Productive
- Can be economical.
- Potential for high quality.



- Optimum window
  - March 15-April 1 (Eastern Nebraska)
  - April 1-April 15 (Western Nebraska)
- Current recommended rates
  - Between 80-100 lbs. seed/acre
- Seeding depth
  - Up to 1 ½ inches is common
  - Planting at ½ to ¾ inches could increase emergence rate, establishment, and forage production

# Crop Production Clinics

**N** EXTENSION



Seeding Rate (lbs per acre)	Fertilization (lbs N per acre)
25	0
50	30
75	60
★ 100	

★ Recommended

- Variety: 'Goliath' oat
- Planted: late March/early April
- Harvest: mid-June/ 'soft dough' stage





- Measurements
  1. Forage production (lbs per acre)
  2. Forage quality (CP, TDN)
  3. Number of tillers (#)

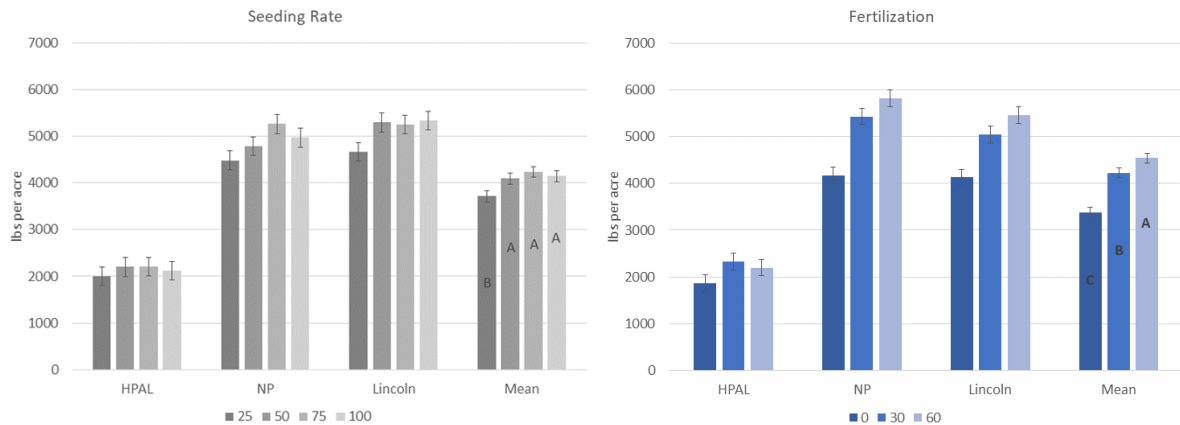




# Crop Production Clinics

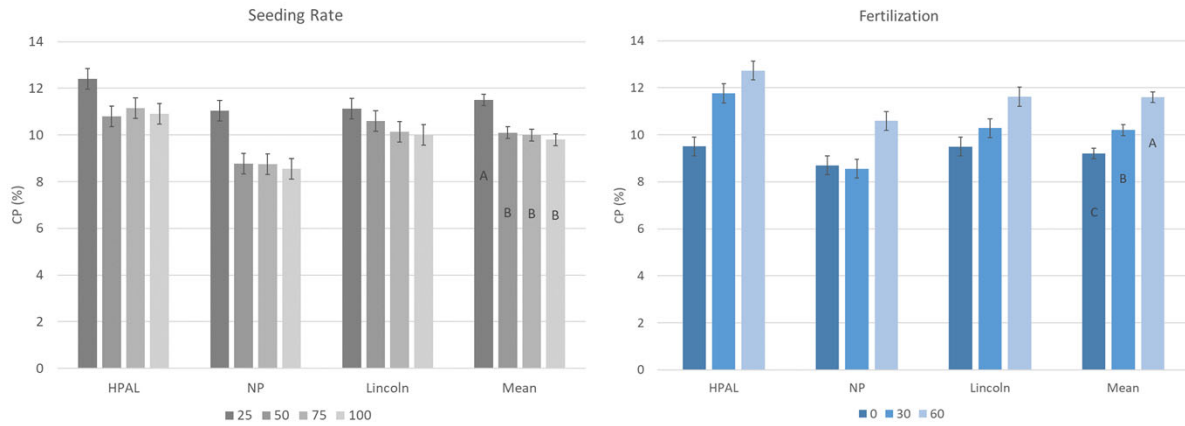


## Results from 2020 – Forage production

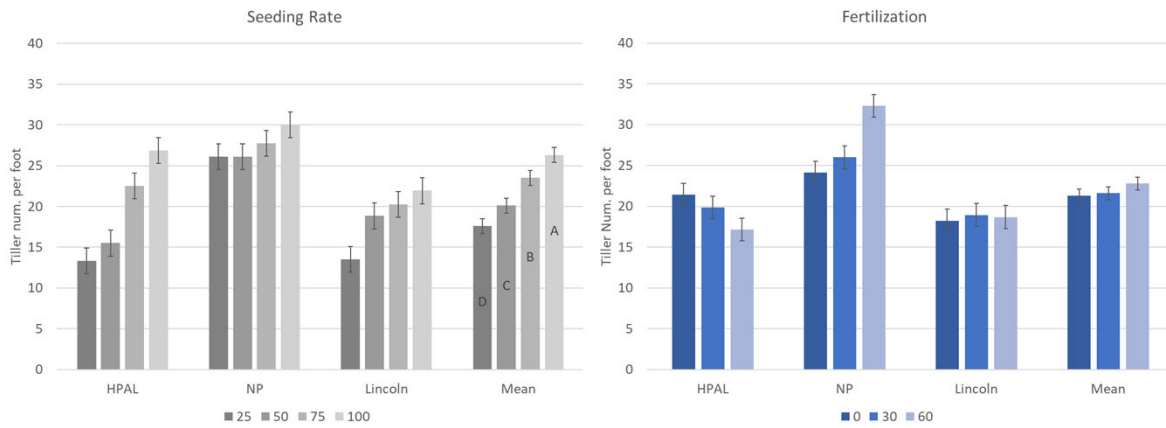


HPAL was 45% of normal precipitation (3.79 in.) in April, May, June (8.24 in. ave)  
Approximately 1,200 to 1,500 lbs per acre less than previous studies for oats

## Results from 2020 – Forage quality (Crude Protein)



## Results from 2020 – Number of tillers



## Take Home Points – Seeding Rate



- Averaged across sites:
  - Seeding rates between 50 and 100 lbs per acre = biomass and CP
  - 25 lbs per acre = 11% less biomass and 16% greater CP
  - Tiller numbers per foot increase as seeding rates increased

## Take Home Points - Fertilization

- Averaged across sites:
  - Increase from 0, 30, 60 lbs N per acre for biomass and CP
  - lbs N per acre did not influence tiller numbers



# Crop Production Clinics

**N** EXTENSION



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