

**AGRICULTURAL REUSE OF BIOSOLIDS**

**UNDERSTANDING WHAT  
FARMERS NEED TO  
KNOW TO GROW A  
SUCCESSFUL CROP**

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# UNDERSTANDING FARMERS



# IN THE BEGINNING...

- **STARTED IN 1991 AS A DEMONSTRATION**
- **PARTNERSHIP FORMED BETWEEN KING COUNTY AND DOUGLAS COUNTY LOCAL SPONSORS**





# LOCAL VESTED PARTNERS

- THREE LOCAL FARMERS - “THE BIG THREE”
- TESTED BIOSOLIDS ON THEIR OWN GROUND
- WELL-RESPECTED, WELL-LIKED
- ACTIVE IN THEIR COMMUNITY
- WILLING SPOKESPERSONS

**BOULDER PARK INC.**  
*Established in 1992*



# LARGE CUSTOMER BASE NEEDED

IN 24 YEARS...

FROM 3 TO 130 FARMERS & LANDOWNERS

FROM 5 TO 90,000+ ACRES



# CUSTOMER OUTREACH

- MEETINGS WITH LOCAL STAKEHOLDERS
- COMMUNITY MEETINGS & INTERACTION
- CONTINUOUS EDUCATION & PROMOTION
- FIELD TOURS





# OUR CUSTOMER: THE FARMER

Businessman

Conservationist

Soil Scientist

Biologist

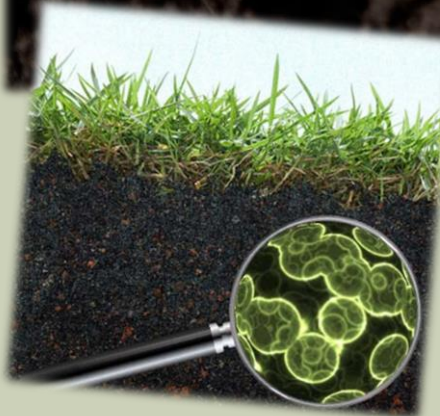
Botanist

Chemist

Meteorologist

Researcher

Historian



# OUR CUSTOMERS ARE DIVERSE



**EACH OF OUR  
CUSTOMERS HAVE A  
STORY AND A NAME**

**JP - Sheriff**

**GP - Banker**

**DP - Douglas**

**BM - Bob**

**LT - Leroy**

**MT - Mike**

**GD - Gary**

**na - Neil**



# HISTORY OF FERTILIZATION

- **1950 ANHYDROUS AMMONIA**
- **SULFUR**
- **PHOSPHOROUS**
- **BIOSOLIDS & MICRONUTRIENTS**
- **PRECISION AGRICULTURE**



# BIOSOLIDS BUILD SOILS

- **INCREASE  
ORGANIC  
MATTER**
- **ENHANCE  
BIOLOGICAL  
ACTIVITY**
- **CARBON  
SEQUESTRATION**



# ECONOMICS OF BIOSOLIDS

- CHEAPER/BETTER
- COMPETITION BETWEEN FARMERS
- LANDLORD FACTOR
- SPECIALTY CROPS
- SAVE THE FARM



**TODAY'S PRICE:**  
**WINTER WHEAT \$3.85 /bu**



# UNDERSTANDING WHAT FARMERS NEED TO KNOW TO GROW A SUCCESSFUL CROP

## BIOSOLIDS VALUE

APPROXIMATE NUTRIENT VALUES FROM ONE TYPICAL LOOP BIOSOLIDS APPLICATION

APPLICATION RATE Dry Tons per Acre (estimate)	NUTRIENT COMPONENT IN BIOSOLIDS	LBS/ACRE APPLIED South Plant	Nutrient Cost (\$/lb.)	APPROX. VALUE (\$ / acre) South Plant
2.50	Nitrogen available first year <sup>1</sup>	99	\$0.48	\$47.64
	Total Phosphorus	55	\$0.69	\$37.95
	Total Sulfur	21	\$0.42	\$8.82
	SUBTOTAL A:			\$94.41
	Total Potassium	8.3	\$0.43	\$3.57
	Iron	88	\$0.44	\$38.72
	Magnesium	23	\$1.20	\$27.72
	Boron	0.11	\$2.43	\$0.27
	Copper	2.0	\$1.84	\$3.68
	Molybdenum	0.05	\$4.20	\$0.21
	Manganese	2.4	\$1.58	\$3.79
	Zinc	4.4	\$0.93	\$4.09
	Calcium	135	\$0.52	\$70.20

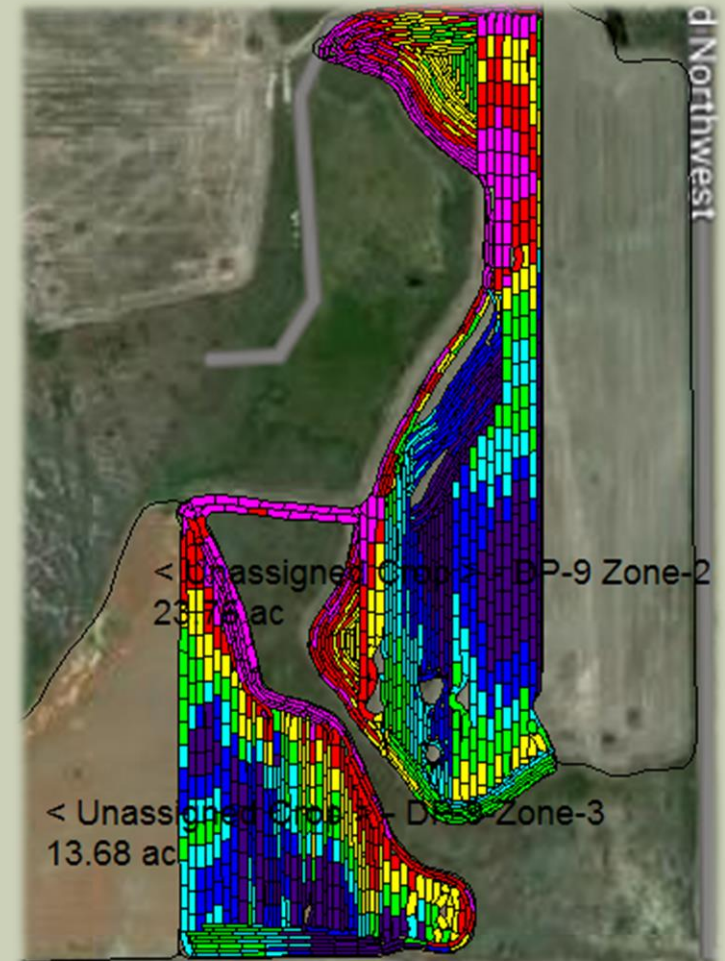
SUBTOTAL B: \$246.66

NUTRIENT VALUE: **\$341.07**

<sup>1</sup> Assuming 70% of ammonia-nitrogen volatilized and 30% organic-nitrogen mineralized in first year. Sp = 39.7 lbsN/dry ton.

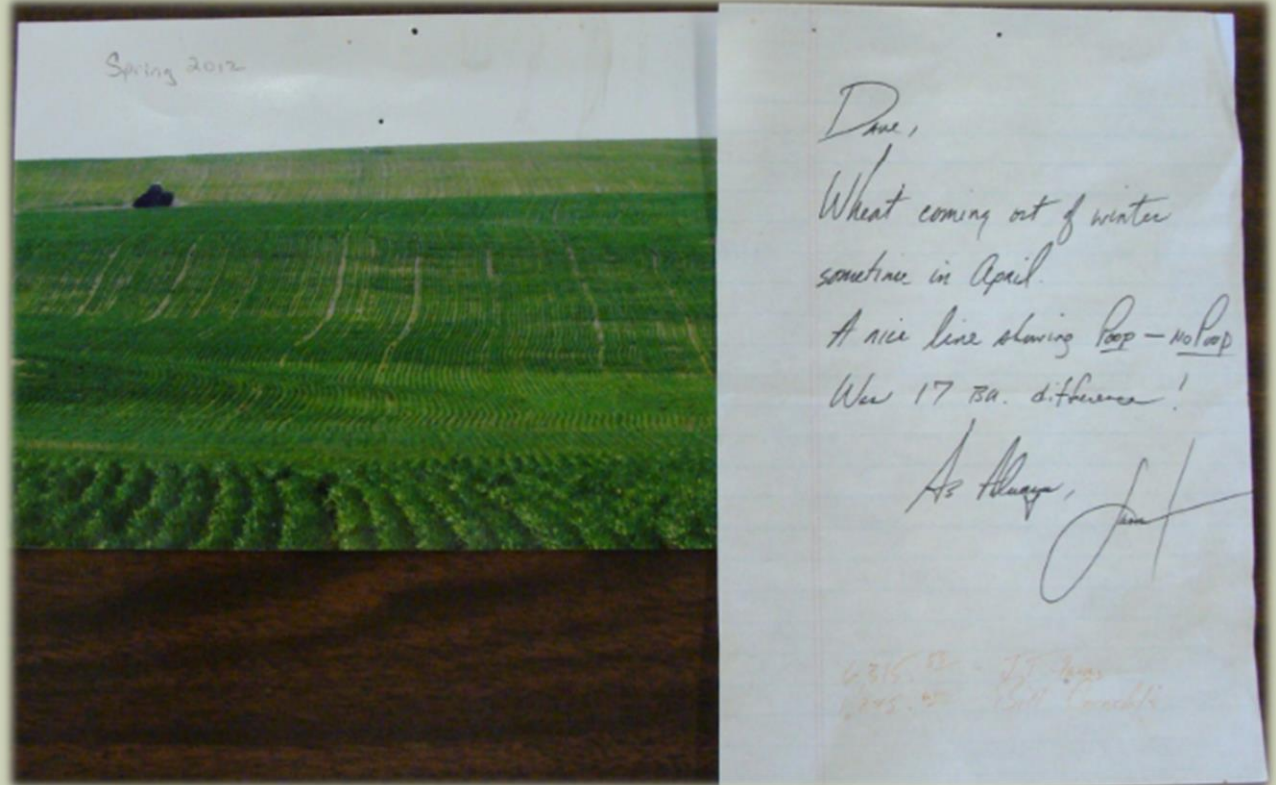
# MEETING THE FARMER'S NEEDS

- GOVERNMENT PROGRAMS
- EQUIPMENT - SPREADERS
- GPS TECHNOLOGY / MAPPING
- SOIL TESTING



# UNSOLICITED PROMOTIONS BY OTHERS

- FARMERS
  - Services
  - Timeliness
  - Quality equipment
- INSURANCE AGENT
- LANDLORDS
- LAND MANAGERS



***“Dave, wheat coming out of winter sometime in April. A nice line showing Poop – no Poop. Was 17 bu difference”***



# SUMMARY

- WORKING WITH FARMERS CAN TAKE TIME – BE PATIENT
- BIOSOLIDS ARE SAFE
- BIOSOLIDS ARE AN EFFECTIVE SUBSTITUTE TO COMMERCIAL FERTILIZERS
- BIOSOLIDS IMPROVE SOIL QUALITY
- BIOSOLIDS OFFER VALUE & PROVIDE COST SAVINGS
- BIOSOLIDS APPLICATIONS SATISFY GOVERNMENT PROGRAMS

# THE END

Some rain

QUESTIONS?

- Thank You!

water runoff

- Not too much rain to avoid fungus

