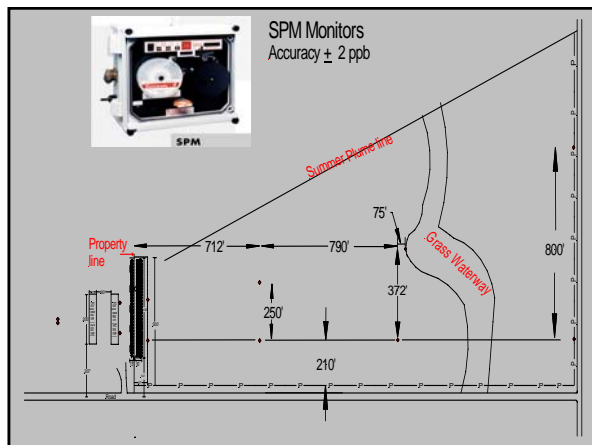


Objective

Determine effect a shelterbelt has on H_2S dispersion.

- Determine effect of shelterbelt porosity
- Compare dispersion by stability class









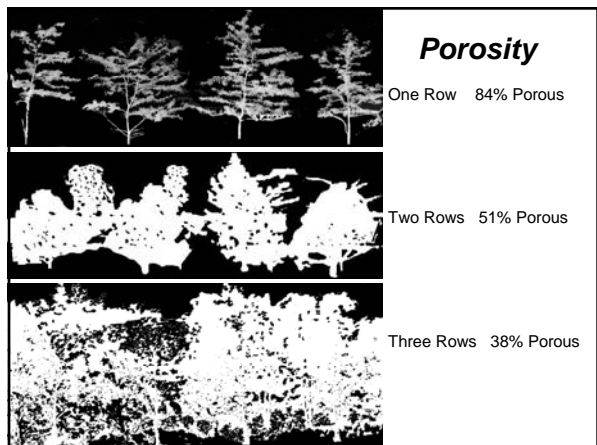


1st Row of Trees



Two Rows of Trees



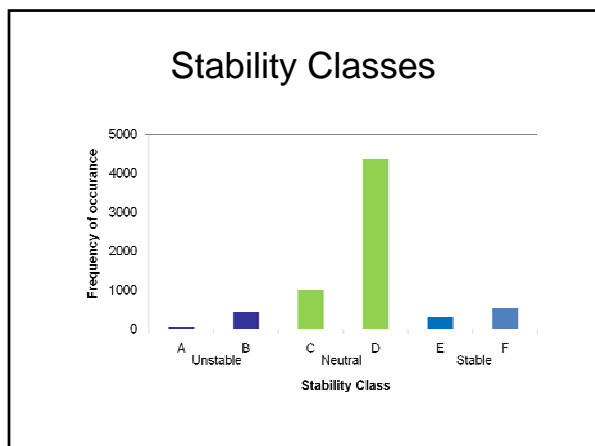


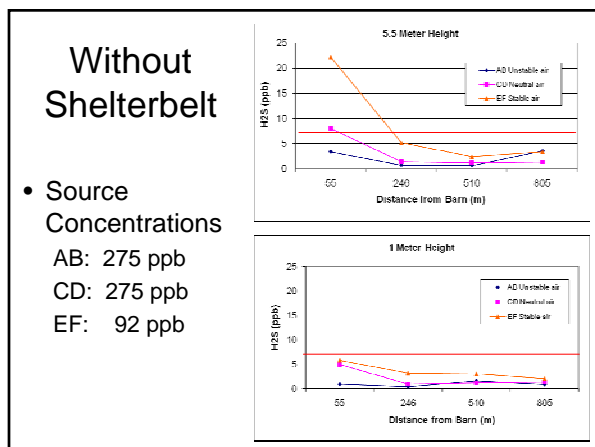
Stability Class

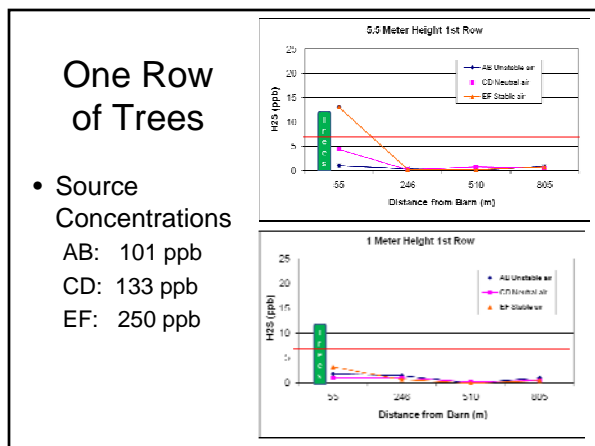
Pasquill-Gifford stability categories

- Class A = very unstable
- Class B = unstable
- Class C = slightly unstable
- Class D = neutral
- Class E = slightly stable
- Class F = stable

Based on cloud cover, wind speed,
air temperature, and solar radiation







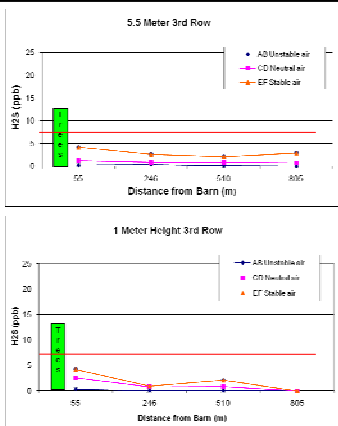
Three Rows of Trees

• Source Concentrations

AB: 141 ppb

CD: 122 ppb

EF: 345 ppb



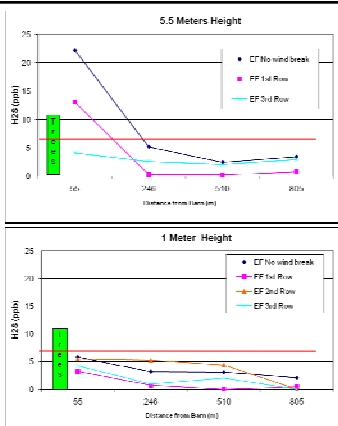
• Source Concentrations

No windbreak: 92 ppb

1 tree row: 250 ppb

2 tree rows: 70 ppb

3 tree rows: 250 ppb



Conclusions

Effect on hydrogen sulfide concentrations

- Most effective reduction occurs just beyond the shelterbelt.
 - After 500 meters (~ ¼ mile) very little effect of the shelterbelt was observed.
- Atmospheric stability affects dispersion.

Recommendation



For odor reduction,
the most effective
location for a
shelterbelt may be
near the recipient.



Recommendation



For odor reduction, the most effective location
for a shelterbelt may be near the recipient.

Acknowledgements

- South Dakota Pork Producers
- Brookings County Conservation District
- Moody County Conservation District
- Nebraska Corn Board

