

EVALUATING EFFECTS OF SPOIL THICKNESS AND COVER SOIL DEPTH ON VEGETATION USING THREE YEARS OF PLANT COVER AND PRODUCTION¹

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Abstract. In 1992, a wedge plot was constructed to simultaneously evaluate the effects of both suitable spoil (0-120 cm) and cover soil (0-60 cm) on vegetative response. This “double wedge” plot is located in northern New Mexico at an elevation of 1,890 meters, and in a 30 cm precipitation zone. It was seeded in 1993 and was most recently evaluated in 2003, 2004, and 2005. Cover and production for these three years were used to determine the relationships of spoil depth and cover soil depth on vegetative response.

In general, both cover and production are unaffected by the thickness of suitable spoil, but increase with increasing depths of cover soil. The purpose of this paper is discuss the conclusions made about cover soil depth as it affects vegetative cover, production, and diversity for three different years of response. There are some differences between years. However, the conclusions are generally the same. Grass cover is lowest where shrub cover is highest; at the shallow depths, and the opposite occurs at the deeper depths of cover soil. Diversity of species is consistently the highest at cover soil depths between 20 and 30 cm. This study seems to support the conclusion that a single year of vegetative response to cover soil depth is generally representative. Shallow soils support shrubs more so than grasses; deep soils become less diverse and dominated by grasses as compared to cover soils about 30 cm. Most importantly, it can be concluded that vegetation responses are affected by cover soil depth and by creating variation in cover depth is an effective way of creating vegetative diversity in reclamation.

Additional Key Words: Vegetative establishment, revegetation, cover depth, vegetative cover, production, shrub density, and species diversity

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