

## Organic Matter Depletion, Salt Concentration, Aerobic Soil Organisms, Organic Soil Subsidence

Soil health is primarily influenced by human management, which is not captured in soil survey data at this time. These interpretations provide information on inherent soil properties that influence our ability to build healthy soils through management.

The ratings are both verbal and numerical. Numerical ratings indicate the propensity of individual soil properties to influence specific aspects of soil health resources. The ratings are shown in decimal fractions ranging from 0.01 to 1.00. For organic matter depletion, salt concentration, and organic soil subsidence, ratings indicate gradations between the point at which a soil feature has the greatest ability to enable depletion of the soil health resource (1.00) and the point at which the soil feature becomes least likely to allow depletion of the soil health resource (0.00). For aerobic soil organisms, ratings indicate gradations between the point at which a soil feature is most favorable to enhance the soil health resource (1.00) and the point at which the soil feature is least favorable to enhance the soil health resource (0.00).

The ratings for *soil organic matter depletion* are based on seasonal saturation, organic matter content, clay content, and shape of the land surface. The degree of limitation caused by each of these properties is rated for a soil, and the sum of the ratings is the overall rating. Rating class terms indicate the extent to which the soils enable the depletion of organic matter. "Organic matter depletion high" indicates that the soil and site have features that are very conducive to the depletion of organic matter. Very careful management will be needed to prevent serious organic matter loss when these soils are farmed. "Organic matter depletion moderately high," "Organic matter depletion moderate," and "Organic matter depletion moderately low" are a gradient of the level of management needed to avoid organic matter depletion. "Organic matter depletion low" indicates that the soil that has features that are favorable for organic matter accumulation. These soils can maintain favorable organic matter levels under more management options.

The ratings for *surface salt concentration* are based on excess salts, which are measured by the electrical conductivity of the soil, the amount of precipitation relative to evapotranspiration, shape of the land surface, and depth to saturation. The rating of the attribute that contributes the least to surface salinization is the overall rating. Rating class terms indicate the rate at which the soils are likely to accumulate salts considering all the soil features that are examined for this rating. "High surface salinization risk or already saline" indicates that the soil has features that are very favorable for the accumulation of salts at the surface or is already saline. These soils are already limited by excess surface salts. "Surface salinization risk" indicates that the soil has features that are somewhat favorable for surface salinization. Careful management will be needed to avoid damage from salinity. "Low surface salinization risk" indicates that the soil has one or more features that are unfavorable for salinization. These soils exist in climates where salinization does not occur or occur in landscape positions where salts are unlikely to accumulate.

The ratings for *suitability for aerobic soil organisms* are based on soil temperature, the average total yearly precipitation, soil organic matter content, soil pore space, soil water, and osmotic conditions. The degree of favorability of each of these properties is rated for a soil, and the degree of limitation of the least favorable attribute determines the overall rating. Rating class terms indicate the extent to which the soils are favorable considering all the soil features that are examined for this land use. "Very favorable" indicates that the soil has features that are very favorable for aerobic soil organisms. Healthy and thriving populations can be expected under properly managed agricultural systems on these soils. "Somewhat favorable" indicates that the soil has features that are moderately favorable for aerobic soil organisms. The soil can be made more favorable by careful management. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for aerobic soil organisms.

The ratings for *agriculture organic soil subsidence* are based on soil temperature, degree of saturation, and soil acidity. The degree to which each of the soil properties considered promotes oxidation is rated. The average degree of accelerating microbial oxidation of organic matter is taken as the overall rating. Rating class terms indicate the extent to which the soils enable the depletion of organic matter. "Organic matter depletion high" indicates that the soil and site have features are very conducive to the depletion of organic matter. Very careful management is needed to prevent serious organic matter loss when these soils are farmed. "Organic matter depletion moderately high," "Organic matter depletion moderate," and "Organic matter depletion moderately low" are a gradient of the level of management needed to avoid organic matter depletion. "Organic matter depletion low" indicates that the soil has features that are favorable for organic matter accumulation. These soils can maintain favorable organic matter levels under more management options.

## **Report—Organic Matter Depletion, Salt Concentration, Aerobic Soil Organisms, Organic Soil Subsidence**

[Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation or suitability. The table shows only the top limitations for any given soil. The soil may have additional limitations]

| Organic Matter Depletion, Salt Concentration, Aerobic Soil Organisms, Organic Soil Subsidence--Rio Arriba Area, New Mexico, Parts of Rio Arriba and Sandoval Counties |                  |                                        |       |                                      |       |                                    |       |                                            |       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------------------------|-------|--------------------------------------|-------|------------------------------------|-------|--------------------------------------------|-------|
| Map symbol and soil name                                                                                                                                              | Pct. of map unit | Suitability for Aerobic Soil Organisms |       | Agricultural Organic Soil Subsidence |       | Surface Salt Concentration         |       | Organic Matter Depletion                   |       |
|                                                                                                                                                                       |                  | Rating class and limiting features     | Value | Rating class and limiting features   | Value | Rating class and limiting features | Value | Rating class and limiting features         | Value |
| 20--Menefee-Vessilla-Rock outcrop complex, 5 to 35 percent slopes                                                                                                     |                  |                                        |       |                                      |       |                                    |       |                                            |       |
| Menefee                                                                                                                                                               | 35               | Somewhat favorable                     |       | Mineral soil                         |       | Low surface salinization risk      |       | OM depletion moderately high               |       |
|                                                                                                                                                                       |                  | Organic matter content low             | 0.27  | Flooding and ponding                 | 1.00  | Non-leaching climate               | 1.00  | Well aerated                               | 1.00  |
|                                                                                                                                                                       |                  | pH somewhat favorable                  | 0.55  | Not saline                           | 1.00  | Water table at the surface, months | 1.00  | Not water gathering surface                | 1.00  |
|                                                                                                                                                                       |                  | Soil water somewhat favorable          | 0.58  | Subaerial                            | 1.00  | Flooding and ponding               | 1.00  | Moderate antecedent organic matter content | 0.93  |
|                                                                                                                                                                       |                  | Mean Annual Air Temperature            | 0.78  | pH                                   | 0.85  | Electrical conductivity            | 0.10  | Moderate moisture deficit                  | 0.73  |
|                                                                                                                                                                       |                  | Clay content somewhat favorable        | 0.90  | Frost-free days                      | 0.23  |                                    |       | Moderate oxidation rate                    | 0.28  |
| Vessilla                                                                                                                                                              | 30               | Somewhat favorable                     |       | Mineral soil                         |       | Low surface salinization risk      |       | OM depletion moderately high               |       |
|                                                                                                                                                                       |                  | Clay content somewhat favorable        | 0.07  | Flooding and ponding                 | 1.00  | Non-leaching climate               | 1.00  | Well aerated                               | 1.00  |
|                                                                                                                                                                       |                  | Organic matter content low             | 0.23  | Not saline                           | 1.00  | Water table at the surface, months | 1.00  | Not water gathering surface                | 1.00  |
|                                                                                                                                                                       |                  | Soil water somewhat favorable          | 0.52  | Subaerial                            | 1.00  | Flooding and ponding               | 1.00  | Low amount of clay surface area            | 1.00  |
|                                                                                                                                                                       |                  | pH somewhat favorable                  | 0.59  | pH                                   | 0.87  | Electrical conductivity            | 0.10  | Moderate antecedent organic matter content | 0.96  |
|                                                                                                                                                                       |                  | Mean Annual Air Temperature            | 0.78  | Frost-free days                      | 0.23  |                                    |       | Moderate moisture deficit                  | 0.73  |
| Rock outcrop                                                                                                                                                          | 20               | Not rated                              |       | Not rated                            |       | Not rated                          |       | Not rated                                  |       |

| Organic Matter Depletion, Salt Concentration, Aerobic Soil Organisms, Organic Soil Subsidence--Rio Arriba Area, New Mexico, Parts of Rio Arriba and Sandoval Counties |                  |                                        |       |                                      |       |                                    |       |                                            |       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------------------------|-------|--------------------------------------|-------|------------------------------------|-------|--------------------------------------------|-------|
| Map symbol and soil name                                                                                                                                              | Pct. of map unit | Suitability for Aerobic Soil Organisms |       | Agricultural Organic Soil Subsidence |       | Surface Salt Concentration         |       | Organic Matter Depletion                   |       |
|                                                                                                                                                                       |                  | Rating class and limiting features     | Value | Rating class and limiting features   | Value | Rating class and limiting features | Value | Rating class and limiting features         | Value |
| 102--Menefee-Nalivag complex, 8 to 25 percent slopes                                                                                                                  |                  |                                        |       |                                      |       |                                    |       |                                            |       |
| Menefee                                                                                                                                                               | 45               | Somewhat favorable                     |       | Mineral soil                         |       | Low surface salinization risk      |       | OM depletion moderately high               |       |
|                                                                                                                                                                       |                  | Organic matter content low             | 0.26  | Flooding and ponding                 | 1.00  | Non-leaching climate               | 1.00  | Well aerated                               | 1.00  |
|                                                                                                                                                                       |                  | pH somewhat favorable                  | 0.55  | Not saline                           | 1.00  | Water table at the surface, months | 1.00  | Not water gathering surface                | 1.00  |
|                                                                                                                                                                       |                  | Soil water somewhat favorable          | 0.66  | Subaerial                            | 1.00  | Flooding and ponding               | 1.00  | Moderate antecedent organic matter content | 0.91  |
|                                                                                                                                                                       |                  | Mean Annual Air Temperature            | 0.80  | pH                                   | 0.85  | Electrical conductivity            | 0.10  | Moderate moisture deficit                  | 0.74  |
|                                                                                                                                                                       |                  | Clay content somewhat favorable        | 0.93  | Frost-free days                      | 0.25  |                                    |       | Moderate oxidation rate                    | 0.31  |
| Nalivag                                                                                                                                                               | 40               | Somewhat favorable                     |       | Mineral soil                         |       | Low surface salinization risk      |       | OM depletion moderately high               |       |
|                                                                                                                                                                       |                  | Organic matter content low             | 0.23  | Flooding and ponding                 | 1.00  | Non-leaching climate               | 1.00  | Well aerated                               | 1.00  |
|                                                                                                                                                                       |                  | Clay content somewhat favorable        | 0.69  | Not saline                           | 1.00  | Water table at the surface, months | 1.00  | Not water gathering surface                | 1.00  |
|                                                                                                                                                                       |                  | pH somewhat favorable                  | 0.77  | Subaerial                            | 1.00  | Flooding and ponding               | 1.00  | Moderate antecedent organic matter content | 0.96  |
|                                                                                                                                                                       |                  | Mean Annual Air Temperature            | 0.80  | pH                                   | 0.93  | Electrical conductivity            | 0.10  | Moderate moisture deficit                  | 0.74  |
|                                                                                                                                                                       |                  | Soil water somewhat favorable          | 0.96  | Frost-free days                      | 0.25  |                                    |       | Medium amount of clay surface area         | 0.72  |

| Organic Matter Depletion, Salt Concentration, Aerobic Soil Organisms, Organic Soil Subsidence--Rio Arriba Area, New Mexico, Parts of Rio Arriba and Sandoval Counties |                  |                                        |       |                                      |       |                                    |       |                                       |       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------------------------|-------|--------------------------------------|-------|------------------------------------|-------|---------------------------------------|-------|
| Map symbol and soil name                                                                                                                                              | Pct. of map unit | Suitability for Aerobic Soil Organisms |       | Agricultural Organic Soil Subsidence |       | Surface Salt Concentration         |       | Organic Matter Depletion              |       |
|                                                                                                                                                                       |                  | Rating class and limiting features     | Value | Rating class and limiting features   | Value | Rating class and limiting features | Value | Rating class and limiting features    | Value |
| 242---Tinaja-Rock outcrop complex, 45 to 75 percent slopes                                                                                                            |                  |                                        |       |                                      |       |                                    |       |                                       |       |
| Tinaja                                                                                                                                                                | 50               | Somewhat favorable                     |       | Mineral soil                         |       | Low surface salinization risk      |       | OM depletion moderately high          |       |
|                                                                                                                                                                       |                  | Organic matter content low             | 0.12  | Flooding and ponding                 | 1.00  | Non-leaching climate               | 1.00  | Low antecedent organic matter content | 1.00  |
|                                                                                                                                                                       |                  | pH somewhat favorable                  | 0.69  | Not saline                           | 1.00  | Water table at the surface, months | 1.00  | Well aerated                          | 1.00  |
|                                                                                                                                                                       |                  | Clay content somewhat favorable        | 0.72  | Subaerial                            | 1.00  | Flooding and ponding               | 1.00  | Not water gathering surface           | 1.00  |
|                                                                                                                                                                       |                  | Soil water somewhat favorable          | 0.74  | pH                                   | 0.92  | Electrical conductivity            | 0.10  | Moderate moisture deficit             | 0.74  |
|                                                                                                                                                                       |                  | Mean Annual Air Temperature            | 0.80  | Frost-free days                      | 0.25  |                                    |       | Medium amount of clay surface area    | 0.68  |
| Rock outcrop                                                                                                                                                          | 30               | Not rated                              |       | Not rated                            |       | Not rated                          |       | Not rated                             |       |

## Data Source Information

Soil Survey Area: Rio Arriba Area, New Mexico, Parts of Rio Arriba and Sandoval Counties

Survey Area Data: Version 18, Jun 8, 2020