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• When the grass on the hillsides is removed and cannot recover, seeding new plants may be necessary.
• In the transport zone, restoring grass and woody species in the riparian buffers will decrease the amount of sediment and nutrients that go into the stream.
In the deposition zone, grass can decrease dust in the air and can improve the grazing potential in pastures.
The successful establishment of grasses in a watershed requires careful planning.

Proper soil preparation is a very important factor in the success of a planting.
In dry areas, the most common causes of seeding failures are:

- poor or inadequate seedbed preparation
- too many weeds
- seeding too deeply
- seeding too late in the spring or too early in the fall
- Seeding on too steep a slope
The Perfect Seedbed

- The best seedbed is:
  - Clean
  - Weed-free
  - Clump-free
  - Well packed and firm
The Perfect Seedbed

- Remove the existing vegetation by tilling
- Smooth out the soil clumps
The Perfect Seedbed

- Firm up the seedbed by:
  - Packing the soil
  - Raking
  - Dragging a timber across the field

Smooth out clumps with a rake

Leveling field with a Timber
The Perfect Seedbed

• Firm up the seedbed by:
  • Irrigating the field prior to planting
  • Let the soil settle
  • Let the soil surface dry out enough to walk on it
The Perfect Seedbed

- How do you tell if it is packed enough?

- Stepping on the seedbed should leave an impression no more than 1.3 cm deep.
How to plant seeds

• Planting seeds by hand
  • Uses a lot of seed
  • Placement is often not accurate

• Using a stick to make the row
  • Depth is not very accurate
  • One row at a time

• Hand pushed drill row machine
  • Make drill rows the same depth
How to plant seeds

A seed drill was created to do a number of things at the same time:

• Make a seed row of a specific depth
• Dropped in one seed at a time
• Covered the seed to get good seed to soil contact
How to plant seeds

• Another advanced drill resulted in:
  • An increased rate of germination
  • Improved crop yield
    • up to eight times higher yield
  • Faster seeding of a field
    • Plant three or more rows at a once
  • Planted a bigger area is a day
How to plant seeds

• Seed drills become bigger and more mechanical
  • Plant seed rows faster
  • Work longer in a day
  • More accurate placement of seed
  • Plant more rows at the same time
How to plant seeds

Smaller seed drills can be used as a hand planter or attached to a tractor in groups of 3 to 9.
Advantages of a seed drill

A seed drill:

• Puts the seeds in the soil at a planned soil depth – every time.

• Measures the seed out for the right spacing between seeds.
  • Plants the right amount of seed without wasting seed

• Packs soil around the seed to get good seed to soil contact.
Planet Junior Seed Drill

Push Handles

Seed bin

Packer Wheel

Double disk or furrow opener

Measuring wheel
Install drive sprocket into measuring wheel

Installing seed bin on double disk opener
Place seed bin on top of double disk opener and lock into place with cam lever.

Seed bin firmly locked onto the double disk opener.
Planer Junior Seed Drill

Calibration of seed drill

1. Place drill on blocks
2. Initial adjustment of seed plate (set to estimated hole)
3. Place seed in seed bin
Planet Junior Seed Drill

Seed Plate

Number at the bottom corresponds to the hole at the opposite end.
• Calibrate the drill to seed 30-35 seeds per 0.3 meters.
• One full turn of the measuring wheel will travel 1.2 meters.
• Prime the drill with seed (put seed in bin and turn wheel until seed comes out).
• Pour priming seed back into the bin
• Turn measuring wheel ½ turn (0.6 meters) and collect the seed.
• Count the seed (60-70 seeds is target for 0.6 meters)
• Adjust Seed Plate to the right hole
Planet Junior Seed Drill

Adjusting seeding depth

• Seeding depth should be 1.27 cm to 1.9 cm

• Seedbed should be well packed and weed-free

• Place Planet Junior Drill on the field

• Push the Drill a short distance

• Measure depth of seeding cut in the field

• Adjust depth bolt to move double disk opener up or down
Evaluate seeding depth

• Drill a short length of seed into the field

• In the drill row, carefully dig down until you find the seed

• Measure the depth
  • Seeding depth should be 1.27 cm to 1.9 cm

• Re-adjust the drill depth as needed
Row Spacing

• Grass should be seeded with 30 centimeters between rows

  • Spacing depends on Precipitation – dry areas have wider spacing

  • Reduces competition between plants for water and nutrients

  • Allows each grass plant to have enough space to grow
Grass should be seeded in the late fall or early spring

A late fall seeding is during the dormant season when the seeds will not germinate or emerge until spring

An early spring seeding is completed prior to spring rains

Plant as soon after snowmelt as possible
Why seed Grass in the late fall?

- Over-wintering helps break some seed dormancy
- Seed is protected from rodents by the snow-pack
- Seedlings emerge early in the spring with the weeds instead of after them
Planting Dates

• Why seed Grass in the early spring?
  • Plant in a moist seedbed
  • Provides best germination temperatures
  • Plant early enough to compete with initial weed growth
  • Plants will become well established before freezing temperatures the next fall
A successful seeding is possible when:

- Seedbed is well packed, firm, and weed-free
- Seed is not planted too deep
- The row spacing is right for the area
- Seeding is completed in late fall or early spring
Test Time
Which shows the best seedbed?

Seedbed should be well-packed and firm
Test Time

What is wrong with this seedbed?

- Too weedy
- Not well-packed and firm
Does this hillside need to be reseeded?

Not enough information:

• What grasses are there now?
• How many weeds?
• Will management changes fix the problem?