

Diversity Index for Crop Rotations

- Avoid conflicts among seeding and harvest times of different crops (for example: trying to seed one crop when harvesting another, or harvesting more than one crop at a time).
- Count perennial crops, such as, alfalfa and/or grass as occurring once in a rotation even though they may occupy more than one year of time in the rotation.
- Follow the scoring instructions for each of the eight items on the "Diversity Index for Crop Rotations" worksheet. Note that items 7 and 8 result in negative numbers and will affect the total accordingly.
- **Strive to achieve a diversity index of at least 2. An index of 3 or more is a good goal!**

7. Seeding time conflict score: $\dots\dots\dots 3 \div 6 \dots\dots\dots = \mathbf{-0.50}$
 $\left(\begin{array}{l} \text{Number of} \\ \text{seeding time conflicts} \end{array} \div \begin{array}{l} \text{Number of} \\ \text{crops in the rotation} \end{array} \right)$

In the example; barley, field pea, and canola need to be seeded at the same time, therefore, the number of seeding conflicts is 3. Divide 3 by 6 (total crops) to give the seeding time conflict value of 0.50 which is always a negative value.

8. Other conflict score: $\dots\dots\dots 5 \div 6 \times .5 \dots\dots\dots = \mathbf{-0.42}$
 $\left(\begin{array}{l} \text{Number of planting vs.} \\ \text{harvest, or harvest vs. harvest conflicts} \end{array} \div \begin{array}{l} \text{Number of} \\ \text{crops in the rotation} \end{array} \right) \times .5$

In our example; barley, winter wheat, field pea, and canola have harvesting conflicts. Winter wheat planting and millet harvesting have a planting vs. harvest conflict for a total of 5 conflicts. Divide 5 by 6 (total crops) = 0.83. Then multiply 0.83 by 0.5* to give a total harvest and harvest vs. planting conflict of 0.42 which is always a negative value. The 0.5 value is included in the equation due to the number of custom grain harvesters available.

Total of items 1 through 8 = 2.33

Diversity Index for Crop Rotations (worksheet)

Crop Rotation: _____ / _____ / _____ / _____ / _____ / _____
 Interval Value= _____ + _____ + _____ + _____ + _____ + _____

1. To obtain each interval value count **the number of crops since the same type of crop** was last used in the rotation for each crop (not to exceed 4), add .5 to each grass-type crop if rotation includes **different grass crops of the same crop type**. Also add .5 to each **broadleaf-type crop if rotation includes a different broadleaf crop**. Enter each value in the "Interval Value" row above. Add values together and divide by total number of years for average rotation interval $\dots\dots\dots$ _____

$x = \text{sum of interval values}$
 $y = \text{number of years}$
 $z = \text{average rotation interval}$
 $\frac{x}{y} = z$

2. Score .5 if rotation includes both **grass and broadleaf crop types**: $\dots\dots\dots$ _____

3. Score .5 if rotation includes both **fall and spring seeded crops**: $\dots\dots\dots$ _____

4. Score .5 if rotation includes both **cool and warm season crops**: $\dots\dots\dots$ _____

5. **Broadleaf crop interval:** (Do not use interval value scores calculated in step 1 here)
 Score 2 if 4 or more years between broadleaf crops, 1 if 3 years, 0 if 2 years, -1 if 1 year, and -2 if there are 0 years between broadleaf crops in the rotation. Total scores for each broadleaf crop interval and divide by the number of broadleaf crops in the rotation: $\dots\dots\dots$ _____

6. **Grass crop interval:** (Do not use interval value scores calculated in step 1 here)
 Score 1 if 4 or more years between any grass crop, .5 if 3 years, 0 if 2 years, -.5 if 1 year, and -1 if there are 0 years between grass crops in the rotation. Total scores for each grass crop interval and divide by the number of grass crops in the rotation: $\dots\dots\dots$ _____

7. Seeding time conflict score: $\dots\dots\dots \frac{\text{Number of seeding time conflicts}}{\text{Number of crops in the rotation}} \dots\dots\dots = \text{_____}$

8. Other conflict score: $\dots\dots\dots \frac{\text{Number of planting vs. harvest, or harvest vs. harvest conflicts}}{\text{Number of crops in the rotation}} \times .5 \dots\dots\dots = \text{_____}$

Total of items 1 through 8 = _____