Diversity Index for Crop Rotations

- Crop rotation diversity means growing a combination of crops that compliment each other as much as possible to prevent disease, weed, and insect problems and maximize productivity and profitability. The rotational time interval between like crops is critical in preventing disease, weed, and insect problems.
- Include as wide a variety of crops and crop types as possible. Below are some commonly grown crops among three main crop types: Cool Season Grass: spring wheat, winter wheat, barley, durum wheat, oat, winter rye Warm Season Grass: corn, sorghum, sudangrass, millet

Warm and Cool Season Broadleaves: field pea, lentil, canola, mustard, crambe, flax, safflower, chickpea, sugar beet, sunflower, dry edible, bean, soybean, alfalfa

Diversity Index for Crop Rotations (sample)

(Planning Tool Only - Procedures may change based on latest research)

Crop Rotation:	barley	/	winter whea	t /	field pea	/	corn	/	millet	/	canola
Put crop rotati	on here; st	artin	g from left to righ	it and	in sequence.						
Interval Value: =	4.5	+	0.5	+	2.5	+	4.5	+	0.5	+	2.5

See #1 below.

- The interval value for barley is 4.5. This is derived by looking at the last cool season grass (winter wheat) and counting the number of crops between winter wheat (cool season grass) and barley (cool season grass) period = 4. Then add 0.5 for barley being a different cool season grass than winter wheat.
- The interval value for winter wheat is 0.5 because there are no other crops between winter wheat and barley, however, winter wheat is a different cool season grass than barley.
- The interval value for field pea is 2.5. This derived by looking at the last **broadleaf** in the rotation which is canola and county the number of crops between canola (broadleaf) and field pea (broadleaf) period = 2. Then add 0.5 for field pea being a different broadleaf than canola.
- Continue to do this for all the crops in the rotation. Then sum the interval values and divide by the total number of years for the average rotation interval which is placed on line 1.

	x = sum of interval values $y = number of years$ $z = average rotation interval$	
2.	Score .5 if rotation includes both grass and broadleaf crop types:	0.5
3.	Score .5 if rotation includes both fall and spring seeded crops:	0.5
4.	Score .5 if rotation includes both cool and warm season crops:	0.5

- 5. Broadleaf crop interval: (Do not use interval value scores calculated in step 1 here)

To determine the broadleaf crop interval; find your first broadleaf in the rotation and then count the number of years to your next broadleaf crop in the rotation. Continue to do this for each broadleaf crop in the rotation. In our example, field pea to canola is 2 years therefore a 0 is assigned for this interval. Also, the canola to field pea interval is 2 years and also receives a value of 0. Then total scores for each broadleaf crop interval and divide by the number of broadleaf crops in the rotation. In our example the broadleaf crop interval is: 0 + 0 = 0 divided by $2 = \dots$

To determine the grass crop interval; find the first grass crop in the rotation and then count the number of years to your next grass crop (**do not distinguish between cool or warm season grass**) in the rotation. Continue to do this for each grass crop in the rotation. In our example, barley to winter wheat is 0 years therefore a -1 is assigned for this interval. The winter wheat to corn interval is 1 year and receives a value of -0.5. The corn to millet interval is 0 years and receives a value of -1. The final grass interval is millet to barley which is 1 year and receives a value of -0.5. Then total scores for each grass crop interval and divide by the number of grass crops in the rotation. In our example, the grass crop interval is: -1 + -0.5 = -3.0 divided by $4 = \dots -0.75$