PUBLIC LAND
IMPROVING ENVIRONMENTAL PERFORMANCE ON AGRICULTURAL LEASES
IMPROVING ENVIRONMENTAL PERFORMANCE ON PUBLIC LAND AGRICULTURAL LEASES

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Cover photo: Geese in cover crops. Photo: Ryan Stockwell, NWF.
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EXECUTIVE SUMMARY

The Upper Mississippi River Basin (UMRB) covers almost 200,000 mi² between northern Minnesota and southern Iowa. Over half of this area is comprised of farmland, including some areas owned by public agencies and leased out to local farmers.

Implementing good agricultural conservation practices is critical to protecting soils and minimizing negative impacts to water quality in the region. While farmers and land managers need to reexamine their practices and increase adoption of conservation practices, it is perhaps even more incumbent on government agencies to do the same with any public land that is leased to farmers in order to protect public interest.

This report reviews the agricultural leasing policies of state and federal agencies in the UMRB and provides recommendations for incorporating cover crop requirements. Strengthening these leases and making cover crops mandatory will decrease erosion and nutrient pollution, support local wildlife populations, and encourage farmers to plant them on their own lands.
BACKGROUND

Within the Upper Mississippi River Basin, over 200,000 acres of agricultural lands are owned by public agencies. Local, state, and federal agencies often own these lands in order to ensure environmental protection in critical areas. To reduce operational costs, these acres are rented to local landowners to grow crops. This unique relationship poses an incredible opportunity to safeguard the environment while also allowing for economic use of the resource. The recent, growing interest in planting cover crops during times the land is not growing a cash crop, presents a new strategy for not only protecting soil and water quality and providing winter cover for wildlife on these public lands, but also to improve the economic performance of row crop production for farmers on these rented acres. This report explores the opportunity for federal, state and local agencies to better meet their public missions and environmental goals on agency-owned agricultural acres by requiring cover crops. This report will also provide recommendations for incorporating language into lease agreements to require this important conservation practice.

Cover crops provide many benefits to both the farmer and the public by reducing farm field nitrate pollution by roughly 20 to 30 percent, preventing up to 90% of erosion and improving water quality in lakes, rivers and streams as well as ground water. Cover crops also provide economic value to farmers. A recent farmer survey reported a 9.6% increase in corn yields and 11% increase in soybean yields from cover cropped fields, compared to fields not using cover crops. In addition, cover crops reduce fertilizer needs, and provide weed and insect suppression services, all of which lower input costs for the farmer. While planting cover crops requires some extra time for planting and terminating, the costs are far outweighed by the benefits. A U.S.D.A. Natural Resources Conservation Service case study in Missouri showed that long term use of cover crops resulted in a profit increase of over $20 per acre per year.

Despite the benefits of this practice, only a small proportion of farmers incorporate cover crops into their rotations. While the practice is steadily gaining acceptance throughout the country, increased education, outreach and incentives will further implementation, help shift farmer attitudes and behaviors, and ultimately increase adoption rates change. Requiring cover crops on publically owned agricultural lands may provide a key step in getting farmers more comfortable with the practice such that they use it on their own lands.

A significant number of farmers in the Upper Mississippi River Basin (UMRB) rent land from a government agency. Renting land presents several barriers to farmers pursuing conservation practices, particularly cover crops. A major obstacle to cover crop implementation is the uncertainty of annual or short term rental agreements. A yearly lease provides no incentive for long term investments in the land, including even moderate fertilizer application. This is a significant issue because almost all farmers understand
Nitrate pollution is a serious problem in both the Mississippi River and the Gulf of Mexico. Agriculture contributes 60 percent of the nitrogen loading to the Gulf of Mexico as seen in Figure 2. Cropland accounts for over 52 percent of the land in the UMRB, making sustainable agricultural practices a necessity for achieving improved water quality. Government agencies leasing land to farmers can contribute to the solution by encouraging or requiring cover crops on the 200,000 publicly leased agricultural row crop acres in the region, to directly address nutrient loss from those fields.

Public lands leases provide benefits for both the government agency and the producer. Farmers have the opportunity to expand their acreage. Agencies can use these leases to fulfill various land management and resource objectives. Most agencies in the UMRB states have some type of conservation goal and require varying degrees of implementation of conservation practices. Encouraging or requiring cover crops in lease agreements would dramatically improve the environmental performance of the land. Land-owning public agencies can follow the recommendations at the conclusion of this report to weave cover crops into existing programs and maximize water quality and wildlife habitat goals. The following section outlines a state by state analysis of the potential for including cover crops in public land leases.

Agricultural leases of public lands can:

1. Help keep invasive species off the property.
2. Create opportunities to work with local farmers.
3. Create opportunities for local farmers to earn an income while meeting water quality, wildlife habitat and carbon sequestration goals of the agency.
4. Provide some income to state agencies through land leases.
The Illinois Department of Natural Resources (DNR) leases approximately 34,000 acres to farmers, holding around 200 agriculture leases at any one time with 70 percent of 2015 leases concentrated in the West Central and Southern regions of the state. These farming leases are for row crop, pasture or Conservation Reserve Program CRP ground and are typically four years long. The goal of these leases are to conduct land management consistent with the agency’s policies.\textsuperscript{11} DNR encourages farmers to conduct integrated pest management and best management practices to ensure environmental stewardship. The standard lease makes no specific mention of best management practices recommended by the state, however no fall tillage is permitted unless specially requested by the site superintendent. The site superintendent is the management level position for each location, and makes lease specific management practice decisions. The superintendent is also responsible for conducting field checks to ensure renters are adhering to lease requirements. It is unclear how often site superintendents permit fall tillage to occur.

Soil testing is required in the spring of the first and last years of the lease to ensure the tenant does not allow the fertility level to drop. Rent may be in the form of cash, services, and percentages of crops or some combination. Acceptable services in lieu of payment can include fertilizer application, field tillage, preparation and planting services, and other agronomic services. Rental rates are established through a competitive bid process, unless the acres are land-locked preventing access from anyone but the neighbors. No reduced rates are offered for services other than those listed by the state. Thus services that provide environmental value are not compensated.

**RECOMMENDATIONS**

The Illinois DNR should strengthen the language of the standard lease to require conservation practices, especially cover crops. Since the current policies do not require any conservation practices, wildlife and water quality are not guaranteed benefits. Although fall tillage is generally not permitted, DNR allows the site superintendent to make exceptions. Policy language should be also be adjusted to set out the specific circumstances under which these exceptions should be granted. Allowing too much discretion can lead to pressure on site superintendents to grant exceptions when they are not appropriate.
The Iowa DNR manages 510 areas totaling 500,000 acres, of which about 40,000 acres are in habitat leases. According to the Iowa DNR, this land is often leased out to producers “for the purposes of maintaining and enhancing habitat for wildlife...providing recreational opportunities...and to conserve soil through the use of good farming and soil conservation practices.” The main purpose of these leases is to provide for a cost effective method for meeting Iowa DNR wildlife management objectives, therefore the leases are not referred to as farm or agriculture leases but habitat leases. Therefore DNR policy is to only enter into leases that benefit wildlife and not those that solely maximize production or bring in additional revenue. However because these leases are not all for permanent grasslands, the agency is balancing cost with habitat value. Requiring cover crops on leases in row crops would allow for both cost value and increased habitat value.

Iowa DNR has five objectives for habitat leases:

1. Habitat for wildlife (food, winter cover, structural diversity) to maintain populations
2. Wildlife habitat to enhance hunting opportunities
3. Floodplain management – to manage and set back succession, and to keep areas open for fall wetland recreation
4. Address depredation issues (of neighbor fields) and improve neighbor relations
5. Seed bed preparation - soybean stubble provides a good seed bed for prairie establishment

DNR requires that operators follow a Natural Resources Conservation Service (NRCS) Conservation Plan. Manure application and fall tillage are prohibited without special permission. Leases also do not allow any corn to be harvested for silage. As of the writing of this report the DNR has never allowed corn silage even when followed by a cover crop. The lease states that lessees must operate the property in accordance with generally recognized and approved agricultural practices. Although those practices are not currently defined, the Iowa DNR is working on a best management practice suggestion list to accompany leases. Specific topics being reviewed include usage of neonicotinoid pesticides and conservation cover. This list will provide suggestions, not requirements and is close to completion at the time of this report. DNR is also reviewing internal best management practices used on food plots planted by agency staff to ensure that a good example is being set for farmers.

**RECOMMENDATIONS**

The Iowa DNR should include cover crops in their best management practice guide, alongside conservation cover. DNR should also require practices rather than just suggest. Requiring even just a few practices, such as cover crops and reduced/no till will benefit local wildlife populations, water quality and the overall health of the land while providing certainty of outcomes.
Despite different lease terms, the policies that govern CFA’s are very similar to those that govern ALs. No fall tillage is permitted unless the lease includes an exception. In general, the DNR suggests the lessee should use minimum tillage equipment on leased land whenever possible. However the DNR is moving away from the AL system toward more CFA’s, to better meet agency habitat restoration and conservation goals.

There will be considerable changes in the near future to the policies surrounding these leases. The DNR is in the process of developing and refining a new list of best management practices to accompany the leases. According to Greg Hoch from the MN DNR, this review is being done “to make sure all of our practices, including farming, are helping and not contributing to any issues. [The review] is positive and shows we’re committed to reviewing the most recent science and doing the best we can for our resources.”

RECOMMENDATIONS

As part of this review the Minnesota DNR should review the language of these policies to ensure certain practices are implemented. For example, minimum/no-till should be required at all times, not just whenever possible. Allowing exceptions to the no fall tillage requirement is understandable to allow flexibility but should be clarified to ensure it is not abused or treated as a loophole. If fall tillage is allowed, conservation cover requirements should be stipulated. Requiring cover crops on the harvested acres would provide a simple step toward meeting further agency habitat restoration goals. Cover crops provide the added benefit of addressing water quality concerns as well as weed management; two outcomes that provide immediate benefits to farmers operating the land.

“The prairie is a habitat with high plant diversity. Many agriculture practices rely on monocultures. With cover crop mixes, we can still have the production of agriculture fields but relying on polyculture and diversity for additional benefits.”

Greg Hoch – MN DNR

Corn harvest in southwestern Minnesota. Photo: Lynn Betts NRCS.

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Corn harvest in southwestern Minnesota. Photo: Lynn Betts NRCS.
The Missouri Department of Conservation (DOC) leases approximately 70,000 acres to 260 farmers under contract. The state’s agricultural lands are managed in accordance with the DOC’s Area Resource Management Policy and Guidelines and are guided by a lengthy Policy and Procedures Manual. The official DOC Policy on agricultural land use is:

“Agricultural operations on Department lands will be used for optimal production of wildlife food and cover with use of accepted best farm management practices and will be managed to provide the best economic return consistent with resource management objectives.”

Rent may be paid to the DOC in the form of cash, a share of the crop produced or through bartered services. All leases contain specific harvest instructions, including number and location of acres to be left unharvested. Permittees are required to leave some crops every year in the field for wildlife food and habitat. Some rules apply to all permits. No fall plowing is permitted unless the producer is seeding fall crops, however spring plowing is permissible. The permittee is not permitted to remove crop residue from the area. Specific best management practice requirements are handled by the local area offices.

RECOMMENDATIONS

Many management practice decisions are left to the discretion of local managers. The Missouri DOC should be more involved in the local best management practice requirements, and should provide local managers with information and training on state recommended practices or practices the DOC would like to see implemented. Leases should also be adjusted to have stricter minimum tillage requirements, and to include cover crops. None of these suggestions are burdensome to farmers. In some states around the country, almost half of all row crop acres are produced using no till. Increasing no till and cover crop adoption will have significant positive impacts on local wildlife habitat and water quality.
Wisconsin

The Wisconsin DNR handles agriculture lease agreements on state owned lands. Approximately 26,000 state acres are currently leased, which comprises about 2% of DNR land. The objective of farming agreements in Wisconsin is to “obtain desirable vegetative manipulation on department-owned lands for wildlife and recreational uses with a minimum of public expense.” Farming of department land is only part of a larger land management or acquisition strategy. Management objectives can include: invasive species control, hunting opportunities, wildlife food plots and others. The DNR is not permitted to rent land solely to raise funds. All revenue generated from leases is used to maintain and manage public lands and public access to those lands.

In-kind services may be provided by the producer in lieu of cash rent. These services can include; leaving crops standing (for food plots or hunting fields), mowing service roads, or maintaining access lanes. All farming on state lands must comply with NR 151, which is the state standard for pollution runoff. Department lands are required to be managed and farmed to minimize phosphorus discharge. Fields are further required to have a permanent vegetated buffer between cropped fields and all waterways or environmentally sensitive areas. Corn must not be cut for silage or removed from the land. However if corn residue is removed for some reason, producers must seed the fields with rye or winter wheat in the fall of that year, but no specific deadline is listed. Hay or grass fields that are spring plowed must have been cut the previous fall to minimize nest disturbance. These stipulations are included to increase wildlife habitat.

Recommendations

To encourage their use, the Wisconsin DNR should require cover crops and consider listing cover crops as an in-kind service. Planting cover crops provide habitat and food for wildlife while improving soil health and fertilizer efficiency. DNR should also adjust their leases to advance benefits to wildlife beyond just the minimum. Requiring more rigorous in field practices would improve soil health (which in turn improves the soil food web and wildlife food chains), and provide improved wildlife habitat. Specifically adding cover crops to all DNR leases would accomplish many of the wildlife related agency goals at almost no cost.
COUNTY OWNED LANDS

Not all public lands leased for agriculture in Wisconsin are owned by the State. In Dane County, the majority of public land is owned by the county. Roughly 12,000 acres are owned by Dane County, with 1,800 – 2,000 acres rented to farmers. The majority of those leased acres are used for row crops. All lands rented out to farmers by Dane County are required to have a conservation plan that manages for sheet/rill erosion and includes erosion reduction conservation practices. In addition to the conservation plan, renters are required to practice no-till farming, maintain specific field residue levels and have a nutrient management plan for each year of the lease. A cover crop is required on fields going from soy bean into corn, and if manure is applied on land after soy bean production. Manure application is restricted to low disturbance vertical injection methods, and is not permitted on frozen ground. These practices are verified annually by county staff. Dane County leases have the most complete lease language and requirements of all those listed in this report and provide an example for other agencies to replicate.

One Dane County lease holder is NWF Cover Crop Champion Jeff Endres. Jeff leases 125 acres from the county, and has established a wetland plan to return half of the land to a more natural state. Jeff has leased the land for 6 years and plants a harvestable native grass mix in the lowest portion of fields. This helps reduce phosphorus runoff and keeps soil on his fields and out of waterways. Photo: Mike Kakuska.
Much of the farming on refuge lands occurs when new land is acquired and is being transitioned back into natural habitat. Oftentimes newly acquired land has been conventionally farmed for many years, and requires a multiyear conversion from traditional farming to prevent severe weed problems and possible financial issues for the farmers. FWS recognizes this and works to ensure a gradual conversion in which about 25% of the land is transitioned per year.

**RECOMMENDATIONS**

Cover crops are not specifically mentioned in any FWS guidance documents. However the documents do emphasize the program’s dedication and commitment to wildlife management and the commitment to soil health and land stewardship. FWS should clarify, to renters and the public, what they mean by a commitment to soil health. FWS should also strengthen the language in their policies to require crop rotation, minimum or no-tillage and cover crops.
Radish cover crop in November. Photo: Elizabeth Lillard, NWF.
While all of the agencies examined in this report include provisions for good farm management, few have stipulated specific practices. Further, none of the state agencies from UMRB states or the US Fish and Wildlife Service specifically require cover crops on agricultural land leased to farmers even though cover crops can have some of the biggest positive impact for water quality and wildlife habitat. The lack of clearly defined practices included in agency definitions of acceptable or required practices creates situations in which implemented practices may not optimize wildlife benefits nor economic benefits to farmers. Government agencies need to evaluate conservation practices for both farm and wildlife benefit. One way to operationalize this is by scoring commonly used practices for wildlife impact. These scores should be taken into consideration when developing management plans and/or leases.

Instead of simply suggesting the use of certain practices, agencies should consider including language in agriculture leases that requires the use of specific beneficial practices, especially cover crops, following a summer or early fall harvested crop. Additionally, implementation of conservation practices should not be left to the discretion of the local or on-site superintendent as this subjects local managers to undue pressure to allow for exception.

Those overseeing these resource agencies need to be supportive of stronger language and farm lease policies. Cover crops can help agencies achieve their various land management objectives by preventing soil erosion, increasing soil health, and ensuring long term crop production. The recommendations listed here can be accomplished through proposed legislation such as the Recovering America’s Wildlife Act (H.R. 5650). This Act would provide dedicated funding for implementing State Wildlife Action Plans (SWAPs) and other similar efforts. The SWAPs for UMRB states discuss habitat fragmentation and degradation as a serious concern; both of which can be improved by cover crops.

Cover crops can be easily woven into existing leases. The following are several recommendations for how to include cover cropping into various sections of a land lease agreement.

1. **REQUIRING COVER CROPS WITH FALL FERTILIZER/MANURE APPLICATION**

One option for cover crop integration is to require cover crops whenever the producer applies fall fertilizer or manure. Several of the policies discussed above discourage fall application but does not specifically prohibit it. Pairing a required cover crop with fall application reduces possible pollution runoff while still allowing the producer some flexibility with fertilizer application timing. Additionally, cover crops are proven to increase the efficiency of fall applied nitrogen. This benefit, combined with the water quality value, makes this requirement easier to incorporate into land leases while better meeting the environmental goals of leasing agencies. Additionally, the fall planted cover crop offers direct wildlife habitat with nesting opportunities in early spring and foraging opportunities in both early fall and early spring.

2. **ALLOWING LONGER LEASES FOR COVER CROPPING PRODUCERS**

Another way to incorporate cover crops in existing systems and contracts is to give longer leases to those producers who use cover crops. This provides
an incentive to implement cover crops as it gives the producer a chance to better capture the long-term benefits from the initial investment. Although cover crops can start boosting crop yields in the first year, they provide more benefits over time as soil health increases.18

6. PROVIDING INFORMATION ON STATE SUPPORTED CONSERVATION PRACTICES

Local land managers handle the majority of lease program logistics, therefore not all producers are necessarily receiving the same advice and encouragement regarding conservation practices. Information on suggested practices from the state level -- provided to the land managers and on the ground staff -- would ensure some consistency for the producers. State agencies should also provide details and specifics about required practices in leases to further the message of conservation and remove both uncertainty and subjectivity that may occur without specific practice stipulations.

3. REDUCING RENT IF COVER CROPS ARE USED CONSISTENTLY

A similar strategy that can be deployed is to lower rent for producers who use cover crops. Many states allow services or wildlife value in lieu of rent. Agencies should consider cover cropping as one of those services. This could provide some incentive to farmers to cover crops.

4. GIVING AN ADVANTAGE TO BIDS THAT INCLUDE COVER CROPS

Easier than changing existing leases is to favor bids and plans that include cover crops. By giving an edge to those farmers who propose cover crops, land managers are saving themselves from having to retroactively encourage cover crops later on. This practice may also encourage more conservation minded farmers to apply and get involved with public land management.

5. REQUIRING OVER-WINTER BIOMASS

One of the benefits of cover crops is they provide organic matter for the field over winter. This organic matter reduces soil erosion and helps suppress weeds. Agencies could require a certain level of over-wintering biomass as it provides some wildlife value. Cover crops are the best way for farmers to meet that requirement. Over-wintering cover crops have the added benefit of providing food that is critical to the survival of a number of species.

7. PROVIDING COVER CROP TRAINING

Land managers and agency staff may be hesitant to recommend and support cover crops if they are not comfortable with the practice. Cover crop training provided to public lands managers will instill more confidence in managers, increasing their willingness and interest in requiring cover crops in contracts and working with farmers to incorporate cover crops into cropping plans. If on the ground managers are able to answer questions and problem solve around cover crops, farmers are more likely to be open to trying the practice.
Public lands leased to agriculture provide another avenue for government agencies to advance conservation practices, specifically cover crop adoption. With a few adjustments to existing leases and lease policies, agencies can increase cover crop use and advance cover crop knowledge across the region. Cover crops provide a multitude of benefits, not only to soil health, and wildlife, but also to water quality and the public at large.

Requiring cover crops will not only enhance and improve the health of publicly owned lands but will also give farmers exposure to the practice. Barriers to cover crop adoption include lack of regionally-specific information and limited availability of key technology and equipment. Requiring cover crops on public lands would expose farmers to the practice, and give them the confidence to try it on their own land. Having an opportunity to try a new practice in a lower risk situation can help shift behavior and lead to changes on private lands.

Not only will an expansion in cover crops benefit farmers and improve soil health, but it will enhance wildlife habitat, protect water quality and boost the longevity of the land for future generations.

Requiring cover crops on public lands would expose farmers to the practice, and give them the confidence to try it on their own land. Having an opportunity to try a new practice in a lower risk situation can help shift behavior and lead to changes on private lands.
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