



EXTENSION

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Dove field management

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The mourning dove (*Zenaida macroura*, hereafter, called dove) is the most hunted and widely distributed game bird in North America. The annual harvest surpasses all other migratory species combined at around 17 million birds. Over 300,000 doves are harvested in Oklahoma each year, which includes both resident birds and migrants from the north. Fall migration generally begins in mid-August but can vary, depending on weather conditions to the north. The hunting season in Oklahoma is typically is from Sept. 1 to Oct. 31 and several weeks in December (visit wildlifedepartment.com for specific regulations).

Doves can be found in a variety of landscapes and plant communities, but they are most abundant in open landscapes with greater coverage of grassland, shrubland and cropland. They will nest in trees, shrubs or even on the ground. Two eggs are laid in a flimsy nest of small twigs, and both parents contribute to the care of the young. Doves readily re-nest and may produce multiple sets of young per year. Young doves grow rapidly as they are fed a rich diet of “crop milk,” which is a regurgitated secretion from the crop (part of the digestion system in most birds) of the adult doves.

Doves avoid forests and dense understory vegetation. They require bare ground to forage because they are not able to move through dense litter. For this reason, they are common along edges of roads, fields and forests where they can feed on seeds. Seeds make up almost their entire diet throughout the year. A variety of both native seeds and cultivated crops are fed upon, depending on availability. Beyond food requirements, doves also readily use standing water if the ground is bare at the water’s edge. Additionally, they roost in trees or on power lines when available. Snags—dead standing trees—are especially attractive to doves.



Figure 1. Sunflowers are an excellent planting to attract doves..

Managing for mourning dove

Dove management is generally focused on providing attractive food resources for hunting during the fall. Fields for mourning dove can be as small as one acre, but larger fields will attract more dove for longer periods of time and can accommodate more hunters. Generally, fields 5–20 acres in size are ideal to attract large numbers of doves for hunting. There are several agronomic plants that can be managed for dove, including corn, cereal grains, grain sorghum, millets, sunflower and buckwheat. Each of these plants is discussed in detail below under Crop Selection.

Revised from a fact sheet prepared by Dwayne Elmore

The most important consideration for dove field management is that the seed must be available on relatively bare ground to be used by doves. This cannot be stressed enough, as dove fields with a thick layer of litter will not be used. This means that some type of manipulation of the crop will be needed in most instances. Management practices that increase seed availability in dove fields include burning, mowing (and potentially raking), disking and herbicide application. Additionally, portions of fields or entire fields can remain fallow to provide bare ground and food availability for doves. Each of these various practices has advantages and disadvantages, depending on the amount of litter, type of planting and time of year. Following is a list of practices and when they are useful.

Manipulation practices

Burning can be useful for grass crops that produce large amounts of dry flammable material, such as millets. The plant material must be dry before a fire can effectively carry through the stand, and herbicides can be used to speed the drying process when necessary. This is an excellent strategy to quickly make seeds available on bare ground. The downside to this technique is that if the manager wishes to hold some food in reserve for later in the season, they will need to install firebreaks prior to burning to break up the field into smaller units. Additionally, some seed could be damaged by the fire if the intensity is high.

Mowing is often used by landowners because it can be done with any crop, and most landowners have a bush hog. It offers the advantage of targeting sections of fields, such as strips or blocks, so food can be held in reserve. The disadvantage is that litter remains on the field, which can impede doves from feeding. It may be necessary to mow several times to reduce the litter to small pieces. Alternatively, the field can be raked after mowing to produce windrows and bare ground strips. Some managers will also bale crops, such as millets after raking, and the bales can be used as cover for hunters prior to removal.

Disking is another common practice for dove fields as it can be applied in strips. The major disadvantage of disking is that it makes some seed unavailable for doves because the disk places seed and litter under the soil surface. Disking again later in the season can bring some of the seed back to the surface, but much of the seed will still be covered or decomposed. One effective strategy is to disk strips following mowing. For example, if you mow strips within a field, after a few weeks, much of the seed will have been consumed. These strips could then be disked to provide additional bare ground, and new strips could be mowed adjacent to the disked areas. Some of the seed from the mowed strips will inevitably be scattered onto the disked areas by the mower, providing additional feeding opportunities.

Herbicide can be used to “burn down” a field in some circumstances. However, in fields with abundant litter, this will not create adequate bare ground. This practice has some application with sunflowers.

Timing of management

Timing of hunting should be a primary consideration when determining crop selection, planting timing and timing of manipulation. If the goal is to provide hunting opportunities during early September, it is desirable to begin attracting doves during July or



Figure 2. This milo field was planted in strips. The fallow strips between the milo have adequate bare ground and allow doves to feed on grain from the adjacent milo plants. This is a good technique if you wish to plant a portion of the field and minimize mowing during the early part of the hunting season. The standing milo would be mowed or burned later in the fall to make the remainder of the field available. Notice that much of the vegetation in the fallow strips is preferred mourning dove food, such as the pigweed.



Figure 3. Burning grass crops can provide clean feeding conditions for doves.



Figure 4. Grain from a mowed milo field is readily available in this field. By keeping row spacing wider and adequately shredding the milo stubble, dove use is enhanced.

early August. Allow at least two weeks for doves to concentrate following manipulation. To have a field ready to hunt by Sept. 1, the crop would ideally be mature by late July or early August to allow time for manipulation and dove concentration. The number of doves that can be attracted will be based on food availability, local dove production, migration patterns and the landscape context.

To attract doves throughout the hunting season, stagger the manipulation every two weeks to ensure seeds are available through a longer time period. This can be done in strips or blocks. Consider planting blocks of different crops with varying maturity times. Similarly, the same crops could be planted at different times to provide seed at staggered periods. In most cases, don't expect a field planted to the same crop maturing at one time to provide attraction throughout the hunting season, even if you stagger manipulation. To hunt doves during the December season, it is critical to retain seeds. This can be accomplished by delaying manipulation, planting larger fields and planting crops where the seed does not readily deteriorate (e.g. grain sorghum and corn).

As an example, an effective dove field for season-long attraction might have blocks planted in wheat, millets, sunflowers and corn. Wheat that was planted the previous fall could be burned in July to provide early attraction. Sunflowers that were planted in early May could then be mowed in strips, starting in August, to provide seeds for opening day. Next, millets planted in June could be burned after the opener to provide continued attraction. Finally, corn that was planted in late April or early May could be mowed in December to provide hunting opportunities during the late season. Exact timing of planting and management may vary, but consider this approach if you are interested in hunting throughout the fall.

Crop selection

Sunflowers

Sunflowers are one of the best plantings to attract doves. Although there are many native sunflower species, planted Perodovik (black oil) sunflowers are often used to attract doves for hunting. Deer herbivory can be a problem when planting sunflowers for doves, so relatively large fields are often required. Additionally, managing for an appropriate density through doe harvest can help reduce grazing pressure on sunflowers. Sunflowers can be planted from April through June, and fields for September hunting should be planted in late April–early May. Sunflowers can be planted with a planter or broadcast onto a well-prepared seedbed and buried to approximately 1 inch with a disk. Once the seed is ripe, the field can be mowed with a bush hog or silage chopper.

Weed management is critical when managing sunflowers to produce large amounts of seed and provide bare ground for feeding. Preemergence herbicides, such as Prowl, Dual Magnum or Spartan, are excellent options to reduce weed problems in sunflowers. Clethodim can be used postemergence to reduce grass weeds, which can be a real problem because of the thatch they create. Clearfield varieties of sunflowers are tolerant of the herbicide Beyond (imazamox) postemergence, which provides an additional herbicide option in fields with problematic weeds.

Crop rotation is an important consideration when planting sunflowers as they are susceptible to several diseases. By managing blocks of a field to different plantings, sunflowers can be made available within a particular field every year by rotating plantings.

Corn

Corn is highly attractive to doves and many other wildlife. It provides large amounts of energy and the seed, does not decompose as quickly as other crops because it is protected in the husk before manipulation. For these reasons, it makes a good planting for late-season dove hunting. However, corn requires relatively great amounts of fertilization, especially from nitrogen. It is also sensitive to acidic soils and should not be planted if the soil pH is below 5.5. Because of the nutrient requirements and seeds cost, corn can be expensive to grow. Relatively large acreage fields of corn are required to provide enough corn to last until December because of deer and raccoon use.

Seeding rate should be determined by soil texture and average rainfall amounts. In sandy drought prone soils, no more than 18,000 seeds per acre should be planted, whereas in loamy soils with higher rainfall patterns (eastern Oklahoma), up to 24,000 seed per acre should be planted. Corn is best planted using a planter but can be effectively be planted by broadcasting onto a well-prepared seedbed and covered by disking approximately 1–2 inches.

Similar to sunflowers, it is important to consider weed control prior to planting corn. Preemergence herbicides, such as Dual



Figure 5. Planting crops with different maturity dates can be effective to provide an extended window of food availability for mourning doves. Here, the landowner has mowed a stand of milo in preparation of the early season and has retained standing corn that will be mowed prior to the December season.

Magnum, are effective at reducing competition from many grass and forb weeds. Roundup Ready (or glyphosate tolerant) varieties of corn are commonly used by producers and allow for glyphosate to be applied postemergence. Although these varieties allow for effective control of many weed species, use of a preemergence herbicide is still recommended to reduce competition.

Once the corn plants have dried down in the late summer, they may be able to be burned under moderate wind. However, if plant interspaces are too large, the fire may not carry effectively. Additionally, burning doesn't release kernels from the ear where they are easily eaten by doves. Thus, mowing or silage chopping are good options for corn fields and generally will be the most effective manipulation practice. If a field still has dense thatch after mowing, it is sometimes helpful to then burn the field to provide more bare ground. For late-season hunting, wait to manipulate the field until a few weeks prior to the season.

Cereal grains

Cereal grains include wheat, cereal rye (not ryegrass), oats and triticale. In Oklahoma, cereal grains are grown as a cool-season crop that is planted in early fall and harvested early the following summer. Wheat is by far the most common small grain grown in Oklahoma and is the best to plant for doves. Although high levels of fertility are not needed, wheat responds to nitrogen fertilizer and does better when phosphorus and potassium fertility is adequate and pH is at or above 5.5. To maximize dove use, allow wheat to produce seed in early summer. Begin burning or mowing strips every two weeks starting in mid- to late summer. Wheat fields managed this way provide excellent attraction relatively early and can be used to attract doves to a field prior to other crops maturing. It also may be legal to hunt over wheat fields planted with broadcasting onto a prepared seedbed as long as the local county Extension office lists this as a bonafide normal agricultural practice. Make sure to not exceed the recommended seeding rates, or the field will be considered baited (see Legal Considerations below).

Grain sorghum

The sorghum family includes several varieties of grain, but the most commonly planted in Oklahoma is milo, which is a type of grain sorghum. These seeds are highly attractive to dove, and similar to corn, do not readily decompose, making them ideal for late season use, especially when planting varieties that mature later. They can certainly be used for early season hunting if planted early in the year and when using a variety with a faster maturity date. Tannin concentrations vary between different varieties of grain sorghum. Sorghum with higher tannin levels have a dark red grain and inhibit bird use, which can be helpful if managing a field for late season hunting because it will not be used as readily early in the fall. White sorghums, such as Hegari, are more palatable for wildlife, but this may result in greater bird depredation prior to the hunting season. The planting timing of sorghum is similar to corn, although most varieties of sorghum mature faster than corn. Higher yields of grain are generally achieved when planting earlier in the year. Sorghum planting can typically begin when the average daily soil temp is at or above 55° F, which will occur in late April in Oklahoma. Both sorghum and corn can be planted in June, but this will delay maturity until October or November. Similar to corn, grain sorghum can be burned once the plant has produced seed, but mowing is usually a better option.



Figure 6. Weed control is important to maximize corn yield, but several weeds provide additional seed that doves will use. Here, ragweed and pigweed are producing seed for doves that will be used alongside the corn.



Figure 7. Several species of millet, including browntop (shown) are easy to plant and are attractive to doves. Species selection should be based on planting and maturation date.

Millet

Millet, including browntop, foxtail and proso, are highly preferred dove foods. Although millet is not commonly grown as a commodity crop in Oklahoma, it is one of the best grains to plant for doves. Browntop millet has shorter maturation times and is a good choice for mid-summer planting (into July), but in general, millets are planted in May or June in Oklahoma.

Millets have relatively modest fertility requirements and are generally planted on a well-prepared seedbed. It is usually necessary to use a cultipacker to prepare the seedbed when planting millet because their small seeds can be buried too deep in the soil. Millets can be successfully grown by no-till top-sowing into a field that has been sprayed with glyphosate to kill weeds. Grass weeds can be problematic in millet plantings, but some of these weeds (such as crabgrass and foxtailgrass) are also desirable dove foods.

Burning or mowing will be required for millets because they produce thick litter layers. Even after mowing, it may be necessary to rake the litter into rows to provide bare ground for dove access. Burning is the best practice to provide bare ground and millet fields are relatively easy to burn. It often is helpful to spray millet with glyphosate after seed production to speed the drying process to facilitate burning.

Buckwheat

Buckwheat is not often planted in Oklahoma, but it has many good traits for dove fields. It is drought tolerant, fast to mature and is readily consumed. Buckwheat generally is planted by broadcasting over a well-prepared seedbed and will produce seeds within 60 days. This makes it an excellent option for late planting.

If planted early in the year, buckwheat will typically reseed during the same season, providing for continued seed production. It isn't advisable to plant an entire field relying on reseeding, but portions of the field planted in late April should produce seed by the end of June. This will provide seeds for doves early in the summer and the buckwheat will then reseed following rain. Light disking may be helpful to promote reseeding if dense thatch is present. After reseeding, the second crop of buckwheat will mature around early September. Buckwheat can be mowed, left standing or lightly disked depending on thatch density.

Multi-use plantings

Many landowners are interested in dove hunting but also have other objectives, such as providing forage for deer and turkeys. Fortunately, several plantings can be attractive to multiple species. Both corn and grain sorghum managed for December dove hunting are attractive to deer while standing. In fact, they often are so attractive that large acreage is required for seed to be available for doves in December. Buckwheat provides forage for deer during the summer as well as seeds that are readily used by turkeys. Deer and turkeys readily forage on wheat during the fall and winter, and they also eat wheat seedheads following maturity if an awnless (or beardless) variety is planted.

Although turkeys will consume millet seeds, they generally don't last very long following manipulation. However, millet can easily be incorporated into a deer food plot rotation, especially with reseeding clovers, such as crimson. After establishing a crimson clover planting in the fall, simply allow it to produce seed the following spring. Spray the plot with glyphosate in late May-early June to kill any incoming weeds, then no-till top-sow browntop millet across the field prior to rain. The small millet seeds will settle into the soil surface during rain and will grow through the dead crimson clover. After the millet matures, spray the field with glyphosate to speed drying and burn the field a few weeks before you plan to hunt. Doves will be readily attracted to the millet seed on bare ground. Following the first rain after burning, the crimson clover will reseed itself to provide an attractive fall plot. This rotation can be maintained indefinitely as long as the crimson clover is allowed to produce seed each year.



Figure 8. Browntop millet seed is readily available after this field was burned.



Figure 9. This dove crop is filled with pokeweed seeds, which doves readily use when available in fallow or native fields.

Fallow field management

Fallow fields often contain abundant “weeds,” many of which are highly desirable to dove, including ragweed, pigweed, croton (doveweed), pokeweed, native sunflower and foxtail. If the planting date window is missed, allow for the seed bank to germinate and evaluate what is available. If a desirable plant community develops, limit herbicide use to control non-desirable plants. Alternatively, you may consider managing portions of a larger dove field as fallow to reduce costs while still providing attraction from native plants. Different portions of the field could be fallowed each year, or designated areas could be managed with annual disking or burning to promote seed-producing plants.

Dormant season disking can be used to encourage many desirable plants, including ragweed, sunflower and croton. Common sunflower, a native sunflower that is commercially available, can be effectively managed once established. Shallow disking (less than 4 inches) during the dormant season will encourage sunflower germination each year. Burning, mowing and disking can be used to manipulate fallow fields and improve access to seeds. Fallow fields can provide a surprising amount of dove attraction.

Additional management strategies

Doves’ use of a plot can be improved if a few trees, preferably snags, are present. Dead snags are magnets for doves flying into the field, and they make excellent ambush points for hunters. Perhaps just as importantly for many hunters, snags can effectively slow doves down to (hopefully) increase their bird-to-shell ratio. If no snags are present, consider using hack-and-squirt or girdle-and-spray to selectively create one where desired. For more information on using herbicides to create snags, see publication E-1058, Forest Stand Improvement Practices for Oklahoma. The snag should be available for several years once the tree is dead, but it will eventually fall. Creating new snags around a dove field every few years helps ensure there are always attractive trees for doves to land in.

Doves’ use of an area can also be enhanced by water. Many hunters look for water sources, such as cattle ponds, to hunt around. Water is especially attractive during the early season when temperatures are warmer. Management of the area around the pond is particularly important, as doves avoid using ponds with dense vegetation on the bank. To enhance dove use of a water source, make sure the slope leading to the edge of the water is shallow and that the ground is bare. Ponds are often low during late summer, and the ground will be bare by default. If this is not the case, management practices, such as grazing, mowing or herbicide application, can be used to create a bare patch for doves to access the water. These bare patches do not need to be large for dove use. If a tree or snag is nearby, it will further enhance use of the water source.

If existing crop fields are not present and if the landowner wishes to minimize expenses, manipulating native plant communities is an excellent option for dove management. Prescribed fire can be used in native grassland and shrubland to stimulate native or naturalized dove food and to remove litter and increase bare ground. Fire often encourages ragweed, croton, sunflower and snow-on-the-mountain, which are highly preferred native dove foods. Fires conducted during mid-summer are often the best as they stimulate food producing plants, and grass regrowth is not dense enough to limit dove access and feeding. Alternatively, areas can be burned during the late growing season, just before or during dove season, to provide clean feeding areas that are attractive to doves. As previously mentioned, strip disking of fallow crop fields can also be conducted to encourage desirable plants for doves. Plant response is best from dormant season disking. Disking after March often stimulates undesirable plants, such as buffalo burr. Disking in sandy soils works well for doves, but tighter soils will typically have



Figure 10. Killing trees along the edges of a dove field using girdle-and-spray is an effective way to create snags for doves to loaf.



Figure 11. Shallow-sloping bare ground along a pond edge is ideal for watering doves. If a tree or snag is near the pond, this further enhances dove use.

dense vegetation by late summer, making some other manipulation necessary to increase bare ground and seed access. Even for landowners who wish to plant a dove field, managing native plant communities around the field to provide resources for doves is desirable to maximize dove attraction.

Legal considerations

Doves are migratory birds protected under the Migratory Bird Treaty Act and certain restrictions apply to hunting or managing doves. It is illegal to hunt migratory birds with the aid of bait or in any area where it is known, or reasonably should be known, that the area has been baited. Baiting is defined as the direct or indirect placing, exposing, depositing, distributing or scattering of salt, grain or other feed that could lure or attract migratory game birds to, on, or over any areas where hunters are attempting to take them. Baited areas can be hunted only when the bait has been completely removed for at least 10 days. It is the responsibility of the hunter to know when an area has been manipulated in a manner that deems the area baited. It is also illegal to hunt in areas where grain has been harvested then redistributed in the same field because this is considered baiting. Fields that are mowed, disked or manipulated in other ways can be used for dove hunting as long as the grain or feed has been distributed or scattered solely as the result of manipulation of an agricultural crop or other feed on the land where grown because this does not constitute baiting.

Waterfowl and cranes may only be legally hunted over grain or other feed if it was scattered or distributed solely as the result of a normal agricultural practice, such as planting, harvesting, post-harvest manipulation or soil stabilization practices. Normal agricultural practices are defined by the OSU Extension. For all practical purposes, this means it is illegal to hunt waterfowl or cranes over freshly planted wildlife food plots until 10 days after all seeds are germinated and growing or where consumed grain or seed has been distributed, scattered or exposed because these plots are not normal agricultural plantings or normal soil stabilization practices. Waterfowl and cranes can also not be legally hunted over food plots that have been manipulated solely for the purpose of wildlife use and were not a normal agricultural practice. This can be confusing because the regulations between waterfowl and dove are not entirely the same, so be sure to carefully review federal and state migratory bird regulations before manipulating hunting areas for dove or waterfowl. Federal and state regulations can be found at fws.gov and at wildlifedepartment.com. When in doubt, call the local wildlife officer to verify that a given practice is legal for the game you intend to hunt.

Summary

Mourning doves are an abundant game bird that is widely distributed across Oklahoma. Not only are hunters able to harvest resident birds, but many birds migrate into and through Oklahoma each fall. By understanding basic agronomy and plant succession, managers can successfully produce and attract large numbers of dove to their property. There are several agronomic crops that can be useful to concentrate dove. Additionally, using disturbances in native plant communities or taking advantage of water sources can also provide good hunting opportunities. Regardless of how doves and dove fields are managed, be certain to check current wildlife regulations at wildlifedepartment.com to ensure you are hunting in a legal manner.



Figure 12. Disking in sandy soils often encourages common sunflower and croton (doveweed). Both are preferred native dove foods.

Table 1. Grains most commonly planted for doves.

Crop	Growing Season	Planting Date	Seeding rate (lb/ac) ¹	Planting depth (in)	Days till mature	Manipulation options ²
Wheat	Cool season	Sept-Oct	75-100	1	180	D, B, M
Corn	Warm season	April-May	10-20	1-2	80-140	D, B, M
Grain sorghum	Warm season	April-June	5-20	1	80-120	D, B, M
Sunflower	Warm season	April-May	5-20	1-2	110	D, M
Browntop millet	Warm season	May-July	15-25	1/4	65	D, B, M
Foxtail millet	Warm season	May-June	15-25	1/4	80	D, B, M
Proso millet	Warm season	May-June	20-30	1/4	80	D, B, M
Buckwheat	Warm season	April-July	25-40	1	60	D, M

¹The lower seeding rates represent drilled whereas the higher represent broadcast seeding.

²Disking (D), Burning (B), Mowing (M).



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