# 50 YEARS OF WEED CHANGES ON THE HOME FARM.

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First I should tell you where the home farm, known as Dolls Orchard, is located. I grew up near Pocahontas, IL (Bond Co.), 40 miles east of St. Louis, MO, just south of Interstate 70. My father raised corn, soybeans, oats, alfalfa, wheat, red clover, pastures, apples, and peaches and we milked about 15 cows and had hogs (farrow to finishing) and a few chickens. Grain sorghum (milo to southern Illinois farmers) and Sudangrass have been and are still grown on occasion. Except for the commercial orchard, it was a rather typical farm for southern Illinois in the 1950s. We sold the hogs, built a milking parlor and expanded the dairy operation to30 to 40 milking cows in the late 1950s, but that had little impact on the cropping system. The farm had 360 acres 50 years ago and has doubled to around 700 acres today; approximately 100 acres are in the Shoal Creek flood plain, hereafter called the bottomlands. My brother Joe now operates the home farm. He sold the dairy cows in the late 1990s, now has a cow-calf beef operation, ceased planting oats about 25 years ago and the orchard is now only an apple orchard.

I always liked knowing what weeds we had on the farm. I never recorded them nor do I recall that Dad did either so I'm trusting my memory and that of my farming brother to assess the weed changes on the home farm since my grade school days until now.

Probably the biggest change is the explosion of winter annuals. These include purple deadnettle, chickweeds, downy bromegrass, smallflower buttercup, shepherds purse, cutleaf groundsel (commonly called butterweed in the area), little barley, pennycress, henbit and flixweed. Other cropland weeds that have increased include giant foxtail (it first appeared in the early 1960s), shattercane, giant ragweed (especially problematic in the bottomland fields), wild garlic, prickly sida, and waterhemp (exploded in the early 1990s). The new biennial in the area is poison hemlock and it is very prominent in fence rows, roadsides and around feedlots. Musk thistle is found occasionally behaving as a winter annual in no till crop fields as seeds drift in from roadside infestations in the area. Weeds that were never found on the farm 50 years ago include purple deadnettle, cutleaf groundsel, little barley, prickly sida, flixweed, and spurred anoda. Of these, purple deadnettle (routinely infesting winter wheat, orchards and summer seeded alfalfa) and little barley (forming monocultures some years before spring tillage is done) are the most widespread and abundant.

Spiny amaranth is more common in pastures today that previously while redroot pigweed is somewhat less common on the farm. Other weeds that have declined in abundance in cropland include cocklebur, common lambsquarters, jimsonweed, eastern black nightshade, morningglory spp., velvetleaf and field bindweed. In the bottomlands, honeyvine milkweed and trumpetcreeper were once serious problems and greatly interfered with row cultivation. Today these vines are essentially eradicated. Curly dock was somewhat common in alfalfa but is less prominent today. Pennsylvania smartweed, fall panicum, green foxtail and large crabgrass can still be found but these species neither were nor are serious problems.

Hemp dogbane and yellow nutsedge have remained as weeds in scattered patches in just a few fields. A single area of bermuda grass appeared in a former apple orchard in the 1990s and occupied less than one quarter acre. It has since been eradicated. Today in the orchard, poison ivy, pokeweed and honeyvine milkweed are serious problems below and in the trees; these were found just occasionally 50 years ago. Converting an orchard into cropland often results in fields with serious pokeweed infestations. These are quickly diminished with a cycle or two of glyphosate resistant soybeans.

Woody invasive weeds such as honey locust have been a constant presence in our long-term pastures (most are on rolling hills that have never been cultivated) but the honey locust population has changed little. Dad planted hundreds of multiflora rose seedlings in the mid 1950s and these have infested a few fence lines but most infestations appear in thin woods around the several farm ponds built in the

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1950s and early 1960s with few if any in the pastures. Multiflora rose on the farm has never reached the impenetrable densities we often find in Wisconsin. Rose rosette disease is common in our multiflora rose bushes, probably limiting its invasiveness. Poison ivy on the other hand, has expanded greatly and now forms dense stands in the woods around the ponds and is a serious problem beneath apple trees. This year for the first time I noticed prickly sida in soybeans and Japanese honeysuckle at the edge of a wooded area and Russian olive in a fence row and pasture on the farm.

Wild garlic has a very interesting history on the farm. We had a small infestation (less than half an acre) in an upland field that was rotated between row crops and alfalfa. It was not found in the bottomland. Today wild garlic can infest nearly every acre of some bottomland fields (which typically have 3 to 4 years of soybean followed by a year of corn). Winter wheat is never grown in the bottomland as Shoal Creek floods many springs. It is interesting that a weed most often associated with small grains is now a common occurrence in a soybean-corn cropping system. And we find some wild garlic in upland sites well beyond the original infestation.

Why have some of these changes happened? An increasing acreage of wheat over time and the use of no tillage on many acres may explain the increase in winter annual weeds and perhaps the decrease in velvetleaf. In particular, no-till planting of winter wheat is a perfect setting for an abundance of winter annual species. Thus wheat has gone from a crop that rarely needed an herbicide to one that is routinely treated. My brother no longer owns a moldboard plow so even fields that are tilled have less aggressive soil disturbance than 50 years ago. The tandem disk and spike-tooth harrow (drag) are also obsolete, but I doubt that this has directly affected weed abundance.

The basic cropping system has changed little in 50 years, but planting soybeans following winter wheat harvest (called “double crop beans,” which are always planted in narrow rows without tillage) is now a routine practice (unless red clover was frost seeded into the wheat and this is done on 10 to 15% of the wheat acres). Double cropping prevents weeds from going to seed after wheat harvest because the beans are kept nearly weed free. In contrast, winter wheat seeded with red clover often allows weeds to produce seed as no herbicides are used in the red clover phase of the rotation.

Waterhemp exploded during the years of frequent ALS herbicide use in soybeans, moving from the bottomland to upland fields on harvest equipment. It remains a weed of concern in soybeans due to its long period of germination. The once common practices of rotary hoeing and row cultivation are now seldom practiced on the farm so weeds escaping the cultural and chemical practices are home free. Fifty years ago our corn row spacing was 38 inches and whole ears were harvested; 25 to 30 years ago, row spacing dropped to 30 inches and harvesting was done with a combine. Soybeans were grown in narrow rows (10-inch spacing) long before it was a common practice. Skip rows were left so that row cultivation could be done with a beet cultivator to complement the early soybean herbicides (cloramben, trifluralin and linuron). Large-seeded broadleaf weeds thrived in this system so in many summers my brothers and I walked fields to remove jimsonweed, cockleburs and velvetleaf. This practice ceased with the advent of selective soybean postemergence broadleaf herbicides.

Today glyphosate resistant soybeans are grown on most acres but conventional herbicides are used in corn to avoid over using glyphosate. Even with that approach, most of the cropped acres receive in-crop applications of glyphosate 50% (soybean-corn system) to 67% (soybeans-wheat/soybean-corn) of the time in the upland fields and up to 75% of the time in bottomland fields. The effectiveness of glyphosate resistant soybean systems to prevent weed seed production has dramatically reduced the abundance of many cropland weeds including cocklebur, field bindweed, eastern black nightshade, morningglories, velvetleaf, jimson weed and lambsquarters and the vines in the bottomlands.

Many changes have occurred on the farm in my lifetime. And the process will continue. I would like to say that a nephew or niece might give an update 50 years down the road, but it is doubtful that the Doll Orchard Farm will survive another generation under our name. And that’s a change of far greater impact on us than the tug-of-war between weed species.

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