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A National Review of State Preferential Property Tax Programs: Challenges and Opportunities for Agroforestry Practices in the United States

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Cover images: (Top left) This alley cropping system in Missouri includes both chestnuts and winter wheat. Courtesy photo by Mallory Daily at University of Missouri's Center for Agroforestry and Cedar Hill Farms. (Top right) Pawpaw grown in Iowa. USDA Forest Service photo by Richard Straight. (Bottom left) Black angus-hardwood silvopasture in New York. USDA Forest Service photo by Kate MacFarland. (Bottom right) Young hybrid popular trees planted in a three-row windbreak at Hudson Demonstration Farm in Urbana, IL. Courtesy photo by Savanna Institute & Canopy Farm Management.

A National Review of State Preferential Property Tax Programs: Challenges and Opportunities for Agroforestry Practices in the United States

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ABSTRACT

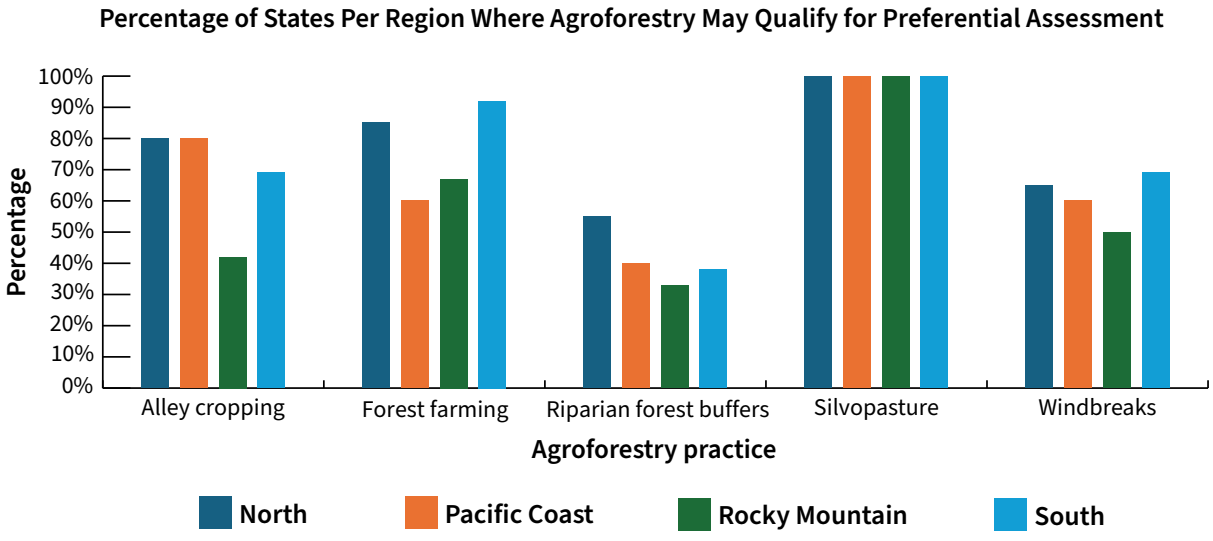
Agroforestry practitioners face numerous barriers, including narrowly focused agricultural and forest land support programs that are targeted toward conventional crop and timber production. Preferential property tax programs (PPTPs) are one of the critical support programs that offer economic relief for landowners of enrolled lands. However, eligibility criteria for these programs may prevent inclusion of agroforestry lands, and thus, disincentivize the diversification of working lands. This study reviewed State statutes, administrative rules, tax guides and manuals, and other supporting publications to determine the compatibility of PPTPs for agricultural, forest, and horticultural lands with the characteristics of agroforestry systems. Results suggest that at least one of the five agroforestry practices of interest may be eligible for preferential assessment in each of the 50 States. PPTPs for agricultural lands may welcome a mixed agriculture-forestry interface more than PPTPs for forest lands. Silvopasture was found to be the most common practice potentially allowed under the preferential tax classifications. Productivity and land cover requirements and prohibited activities were identified as the primary limiting factors restricting eligibility of agroforestry practices. The findings from this study may be used to inform discussions related to landowner decision making and natural resource policy.

Keywords: tax incentive; silvopasture; alley cropping; windbreak; riparian forest buffer; forest farming; valuation and appraisals

Key Messages:

- Researchers catalogued and reviewed State preferential property tax programs for agricultural, forest, and horticultural lands and investigated their compatibility with the characteristics of agroforestry systems.
- Program requirements and information on eligibility were extracted from State statutes, administrative rules, tax guides and manuals, and other supporting publications.
- The study reviewed program requirements to determine if characteristics of agroforestry and land use systems were "emphasized," "acceptable," or "unacceptable."
- Silvopasture may qualify for preferential assessment in each of the 50 States.
- This work highlights the complexity in determining how integrated land use systems such as agroforestry practices may or may not qualify for public assistance and incentive programs.

Graphical Abstract



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INTRODUCTION

Property taxes can be a significant financial consideration for owners of rural working lands including agricultural and forest lands. Working lands have been recognized for their multifunctionality and ability to provide essential goods (e.g., food and timber) and services (e.g., soil retention and flood control) that support the sustained vitality and resiliency of rural landscapes and economies (Coffin et al. 2021, Guido et al. 2023, Machado and Coleman 2023). Accordingly, preferential property tax programs (PPTPs) for agricultural and forest lands may be one tool to incentivize adoption of multifunctional land use practices, such as agroforestry, that foster the sustainable production of market and nonmarket benefits. Agroforestry is an integrated land use that intentionally combines trees or shrubs with agricultural production systems to promote socioecological benefits (USDA Forest Service 2023).

Since agroforestry integrates characteristics of both agriculture and forestry, it is not clear if agroforestry practices would qualify for PPTPs for agricultural lands, forest lands, both, or neither. As a result, there is a need to evaluate the potential for agroforestry practices to qualify for PPTPs. Chizmar et al. (2022) piloted an evaluation approach in five States. This study expands those methods to the remaining 45 States. Therefore, the objective of this national-scale study is to assess the potential eligibility of agroforestry practices to qualify for PPTPs for agricultural, forest, and horticultural lands. The findings from this comprehensive review highlight the diversity in PPTPs and agroforestry practices across the Nation and the complexity in determining the potential property tax treatment of agroforestry practices.

BACKGROUND

Individual States in the United States, and in some cases local governments such as counties, promulgate their own property tax programs, including both general and specialized property tax programs, resulting in a variety of structures (Chang 1996, Li 2019). Property tax programs base tax liabilities on assessed land values, which are determined by the land use classification, zoning, or both and uniform procedures outlined in the program. Commonly, lands are assessed at the fair market value of the bare land. The fair market value is the estimated price the property would voluntarily sell for in the local market reflective of comparable properties with similar characteristics (National Timber Tax 2020). Due to their potential for development, rural working lands near sprawling metropolitan areas in States that assess lands based on fair market value may experience higher property tax liabilities. In this case, the property tax, an annual cost that lowers net income from agriculture and forest land, could incentivize landowners to sell (Cushing and Newman 2018, Devadoss and Manchu 2007). As a result, a PPTP for rural working lands offers a pathway toward lower property tax burdens.

Preferential property tax programs generally decrease, defer, or eliminate property taxes for qualified landowners (Frey et al. 2019). Hibbard et al. (2003) outline five approaches to lowering or delaying the property tax burden of forest lands: modified ad valorem, current use, flat tax, exemption, or a hybrid ad valorem-current use. A modified ad valorem treatment approach assesses lands at a percentage of fair market value. Meanwhile, current use assessments assign land values based on the lands' current condition with respect to factors such as use, cover, and productivity (Anderson 2012). For instance, current use values for agricultural land may be determined by potential soil productivity and the associated income from the sale of specific crops such as corn or soybean. Use values for forest land can be based on annual growth of the timber or on a gross or net mean annual income of the land as a function of average annual growth and average stumpage values. Flat tax programs levy a specific

amount per acre such as $3.00 per acre, whereas tax exemption programs eliminate property taxes on enrolled lands altogether (Hibbard et al. 2003). Additional types of PPTPs include rebate laws, which reduce property taxes for landowners that implement forest management practices, and yield tax laws, which recuperate deferred property taxes when timber is harvested (Hickman 1992). Noteworthy, severance taxes are similar to yield taxes (i.e., they are imposed at time of harvest) but are not generally considered a type of PPTP as they are levied in addition to property taxes rather than in lieu of property taxes (Hickman 1992).

State PPTPs for rural working lands were first enacted early in the 20th century. For instance, in 1906, the Iowa Legislature passed the Forest and Fruit Tree Reservation Act, which exempts enrollees from property taxes and incentivizes landowners to maintain forest cover as a source of income as well as to control erosion, protect watersheds, and provide habitat for game species (Iowa Department of Natural Resources 2024). Maryland is credited for adopting the first use valuation PPTP for agriculture in 1956 (Anderson 2012). Since then, PPTPs have been adopted by each of the 50 States to relieve the property tax burden of rural working lands (Anderson 2012, Frey et al. 2019). Over time, PPTPs for agricultural and forest lands have evolved to mirror the shifts in societal values, economic scenarios, and environmental priorities (Locke and Rissman 2012). The core goals of many of these programs were to support local farmers and the agricultural and forest sectors and manage urban sprawl, thereby promoting food security and a stable rural economy (Anderson and England 2014, Bengston et al. 2004, Bigelow and Kuethe 2020, Frey 2023, Malme 1993). Specifically, PPTPs traditionally covered lands actively and primarily engaged in agricultural and forestry activities such as crop cultivation, livestock grazing, dairy farming, and timber production (Malme 1993).

Nevertheless, the latter half of the 20th century, marked by a growing environmental consciousness, witnessed an expansion in the objectives of PPTPs to include environmental conservation, similar to other policy tools for land conservation enacted during the time (Bigelow and Kuethe 2020, Chizmar et al. 2021, Malme 1993). Protecting rural working lands including agricultural and forest lands emerged as a strategy to promote healthy ecosystems and functional landscapes. Particularly, forest lands critical for watershed protection or habitat conservation garnered new levels of attention (Bengston 1994). Tax incentives were extended to lands not primarily engaged in timber production but instead managed for ecological reasons (Kilgore et al. 2017, Locke and Rissman 2012). Acknowledging the recreational, aesthetic, and tourism potential inherent in agricultural and forest lands, some States began to reflect these uses in their tax programs, incorporating lands such as orchards with pick-your-own services, vineyards, private forests that allow public recreation, and scenic forest areas into PPTPs (e.g., Arizona, Iowa, and Pennsylvania).

Two studies in the literature have assessed the potential of agroforestry practices to qualify for preferential assessment (i.e., the specific treatment of land and/or tax values to reduce property tax liabilities; Chizmar et al. 2022, Cutter et al. 1999). Using data from a national survey of natural resource professionals, Cutter et al. (1999) identified State tax incentives in Indiana, Delaware, Michigan, New Jersey, North Dakota, and Wisconsin that either directly or indirectly pertain to agroforestry. More recently, Chizmar et al. (2022) reviewed property tax statutes and supporting publications to evaluate the compatibility of agroforestry practices with PPTPs for agricultural and forest lands in five pilot States: Nebraska, New York, North Carolina, Oregon, and Wisconsin. While both studies found that agroforestry practices may qualify for PPTPs in Wisconsin, Chizmar et al. (2022) also found that agroforestry practices may be eligible for preferential assessment in each of the other four pilot States. Discrepancies in the findings of the two studies may be due to changes in State property tax codes and regulations.

METHODOLOGY

Scope

This study evaluated the eligibility of agroforestry practices to qualify for PPTPs for agricultural, forest, and horticultural lands in 45 States across the Nation (app. A). We (the authors of this study) incorporated the findings of Chizmar et al. (2022) to provide a comprehensive analysis of the compatibility of agroforestry practices with PPTPs across all 50 States. We aggregated the States into the four U.S. Department of Agriculture (USDA), Forest Service Resources Planning Act Assessment regions—North, Pacific Coast, Rocky Mountain, and South—for ease of reporting results and to evaluate regional trends. The North region contains 20 States, whereas the Pacific Coast region has 5 States, the Rocky Mountain region has 12 States, and the South region has 13 States (app. A).

The agroforestry practices of interest to this study are those identified by the Forest Service's National Agroforestry Center, which are alley cropping, forest farming, riparian forest buffers, silvopasture, and windbreaks (USDA Forest Service 2023). Alley cropping systems feature alleys of cultivated agricultural or horticultural crops between rows of trees that are generally spaced close together. Forest farming involves the production of high-value crops such as mushrooms, medicinal plants and herbs, and maple syrup under managed forest cover. Further, riparian forest buffers are managed areas between agricultural lands and water bodies such as streams, lakes, and wetlands that include trees, shrubs, or other perennials whose benefits include erosion control and habitat for wildlife. In a silvopasture system, grazing livestock and trees or shrubs are intentionally integrated on the same land. Finally, windbreaks, also referred to as shelterbelts and hedgerows, feature linear rows of woody crops adjacent to fields and pasture (USDA Forest Service 2023).

Methodological Framework

We adapted the approach utilized by Chizmar et al. (2022) to extract information from State statutory and administrative codes and other property tax-relevant publications and determine the potential compatibility of agroforestry practices with PPTPs for agricultural, forest, and horticultural lands throughout the United States. In a pilot-scale study, Chizmar et al. (2022) evaluated the opportunities and challenges for agroforestry practices to qualify for preferential assessment through a mixed-methods approach that featured focus group discussions and document analysis.

Based on the similar approach of Chizmar et al. (2022), we searched State agency websites to find potential contacts with knowledge of State-specific property tax statutes, regulations, and publications. State-specific publications include manuals, guides, factsheets, websites, and other documents that are generally publicly available. When we were unable to find a contact or locate a publication through the web search, we leveraged the professional network of the Forest Service's National Agroforestry Center to find potential contacts. Publications for the 45-State region were collected between December 2022 and December 2023, while publications for the 5 pilot States were collected in 2020 and 2021. We created a database of the State publications identified using both search methodologies and then extracted the data related to program administration, eligibility, preferential assessment, penalties, and management requirements (table 1). We utilized the three categories of preferential assessment used by Kilgore et al. (2017): modified-rate assessment, flat tax, and exemption. While the flat tax and exemption categories are defined similarly to Hibbard et al. (2003), the modified-rate assessment category includes both modified ad valorem and current use value approaches to preferentially assess enrolled lands.

Table 1—Property tax program attributes extracted in document analysis

Attribute	Description
State	State name
Program	The name of the program or preferential assessment
Tax code	The statute(s) or regulation(s) that describe the program
Organization	Organizations responsible for administration and implementation
Owner	Which landowners are eligible to participate
Acreage	Minimum and maximum acreage in specific use or ownership required for eligibility
Land use class	Land use classification eligible for program (agriculture, forest, or horticulture)
Land use qualifier	Specific land use or cover mentioned for program (e.g., cropland, pasture, timberland, orchard, woodland)
Income requirement	Annual or periodic income amount required for eligibility
Product requirement	Specific product required for eligibility
Management plan	Written management plan requirement for enrollment
Required practice	Land use practice and management requirements for enrollment
Modified approach	How the program preferentially assesses qualifying lands (modified-rate assessment, flat tax, or exemption)
Land valuation	How the program determines land values for preferential assessment
Tax rate	The tax or millage rate used to calculate tax liability
Capitalization rate	The rate, if used, to capitalize income for land value calculation
Disqualification penalty	Fee for being disqualified from program
Fail-to-report penalty	Fee for not reporting land use change (from preferential assessment land use to other land use)
Deferred tax	Also known as rollback or recapture tax, the additional tax landowners must pay when leaving the program (generally, the difference between tax liability if not enrolled in program and preferential tax liability under program)
Noncompliance fee	Fee for being out of compliance but not disqualified from program

The focus group discussions completed by Chizmar et al. (2022) highlighted the diversity in agricultural and forest land uses and preferential assessment of those land uses across the Nation, which led the researchers to focus on agroforestry and land use characteristics as opposed to the agroforestry practice terminology in their review. Agroforestry and land use characteristics include land use attributes of specific agroforestry practices such as if the agroforestry practice features tree buffers near riparian areas or cultivated agricultural or horticultural crops (table 2). Accordingly, we also focused our analysis on agroforestry and land use characteristics to encompass the variability of agricultural, forest, and horticultural land uses and preferential assessment of those land uses in the 45 States that were not analyzed by Chizmar et al. (2022). We modified the list of agroforestry and land use characteristics by differentiating between riparian and non-riparian tree buffers. The modification allowed the research team to more easily determine which agroforestry practices that include rows of trees or woody buffers may be eligible for preferential assessment.

Table 2—Agroforestry and land use characteristics used for qualitative coding

Land use component	Characteristics
Agriculture-related	Commercial agricultural/horticultural products (including mushrooms, ginseng, etc.) Grazing of livestock Eligibility of tree buffers: riparian Eligibility of tree buffers: non-riparian Fallow land or wasteland included
Forestry-related	Commercial (timber) tree species Nontimber tree species
General management	Residential area included in assessment Agriculture and forestry interface Leasing permitted

Following the methodology used by Chizmar et al. (2022), we indicated if agroforestry and land use characteristics are emphasized, acceptable, or unacceptable according to PPTP requirements. Emphasized characteristics are those that are related to the program's main objective or explicitly mention the agroforestry practice or its characteristics in the reference documents. Acceptable characteristics are those that are allowed within certain limits but are not related to the primary objective of the program, and unacceptable characteristics are not allowed or rarely allowed on a case-by-case basis. Based on the agroforestry and land use characteristics, we inferred if any of the five types of agroforestry would likely be eligible for preferential assessment in the programs identified. For example, if a PPTP with a forest classification permits grazing of livestock, then a silvopasture system in that region or State is likely eligible for preferential assessment. However, as these inferences are based on the availability of information in the collected documents and county assessors generally are tasked with determining the eligibility of individual properties, we recommend consulting with a local assessor to evaluate the eligibility of a specific property and agroforestry practice.

RESULTS

In addition to the 10 programs evaluated by Chizmar et al. (2022) in the 5 pilot States, we identified 68 PPTPs for agricultural, forest, and horticultural lands in the remaining 45 States, leading to a total of 78 distinct programs in our dataset. The 78 programs include general property tax programs in which rural working lands qualify based on their land use classification and tax programs that require landowners to apply for preferential assessment in addition to meeting land use conditions. The distribution of PPTPs across each State and region is shown in figure 1. Among the States, Hawaii and Oregon have the highest count of PPTPs for agricultural, forest, and horticultural lands at four. Interestingly, Hawaii's four largest counties offer PPTPs for rural working lands including tree farms, which are defined by the State statute (i.e., Hawaii Rev. Stat. § 186-1). Delaware, Illinois, and Michigan each have three PPTPs. Most States offer either one or two PPTPs for rural working lands. In the South region, Georgia is the only State with two programs, while the others have one each. Likewise, in the Rocky Mountain region, all States, except Idaho, Montana, and North Dakota, offer a single PPTP.

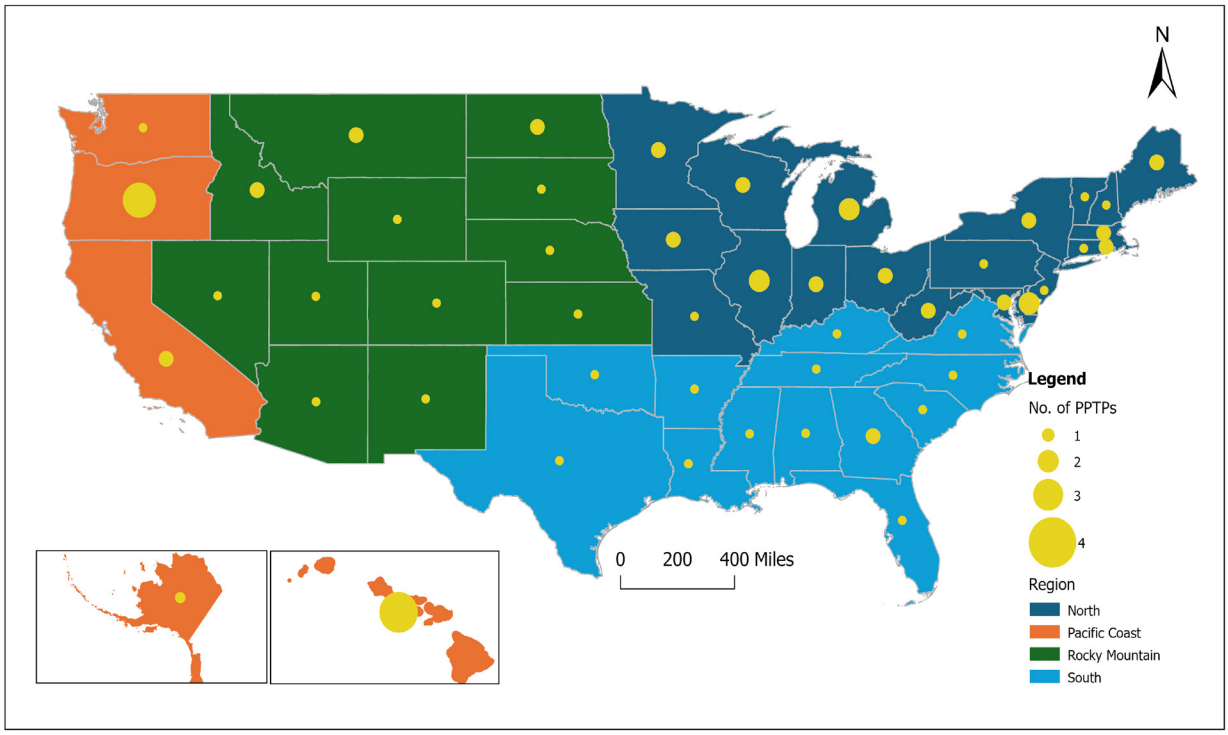

Figure 1—Number of preferential property tax programs (PPTPs) for agriculture, forest land, and horticulture in each State represented by yellow circles, where larger circles signify a larger number of programs. States are grouped into four regions: North, Pacific Coast, Rocky Mountain, and South.

Several States, including Alabama, Arizona, Delaware, Illinois, Kansas, Kentucky, Louisiana, Minnesota, Mississippi, Montana, Nevada, New Hampshire, New Mexico, Oklahoma, South Carolina, Texas, Virginia, and Wyoming, offer general property tax programs suitable for all eligible agricultural, forest, and horticultural lands. In fact, in 24 of the States included in the study, forests or woodlands are included in the definition of agriculture for purposes of property tax treatment. Further, as horticulture is regularly categorized as a type of agriculture in our dataset, we limit the reporting of the rest of the results to the agricultural and forest land use classifications, unless horticulture is characterized differently from the other land uses. In the 20 States in the North region, there are 11 programs exclusively for forest lands and woodlands. Meanwhile, the Rocky Mountain region has three programs and the South and Pacific Coast regions each have one program for forest-based land uses exclusively.

We subcategorized the identified PPTPs by land use classification to facilitate the analysis of agroforestry practice eligibility (fig. 2). This involved creating individual "subprograms" for each eligible land use within the scope of the study and evaluating each of the subprogram's land uses separately. For instance, all three land use classifications—agriculture, forest land, and horticulture—may qualify for the New Hampshire general property tax program. Therefore, for the purpose of this analysis, the New Hampshire general property tax program has an agricultural subprogram, a forest land subprogram, and a horticultural subprogram.

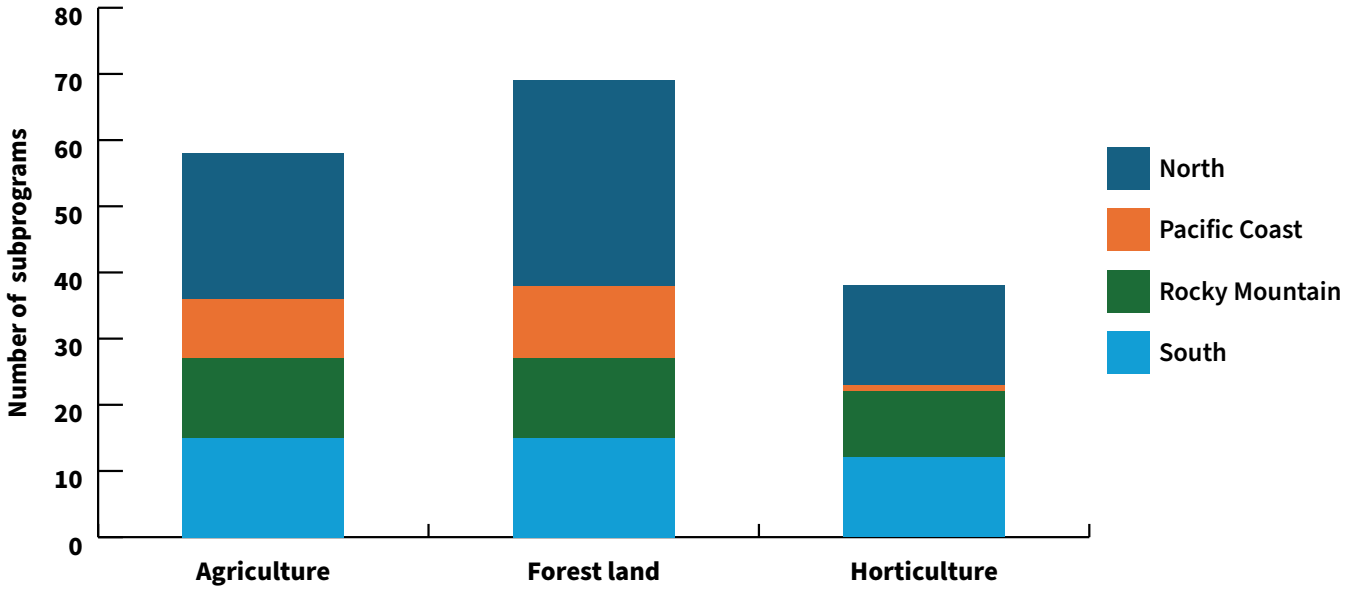

Figure 2—Number of preferential property tax subprograms identified in the study by land use and region.

In total, we identified and cataloged 165 subprograms in the 50 States (app. B). There are 68 subprograms in the 20 States in the North region, 21 subprograms in the 5 States in the Pacific Coast region, 34 subprograms in the 12 States in the Rocky Mountain region, and 42 subprograms in the 13 States in the South region. For agricultural land (n = 58 agricultural subprograms), there are 22 subprograms in the North region, 9 subprograms in the Pacific Coast region, 12 subprograms in the Rocky Mountain region, and 15 subprograms in the South region. In terms of forest land (n = 69 forest land subprograms), the distribution is as follows: 31 subprograms in the North region, 11 subprograms in the Pacific Coast region, 12 subprograms in the Rocky Mountain region, and 15 subprograms in the South region. Regarding horticulture (n = 38 horticultural subprograms), there are 15 subprograms in the North region, 1 subprogram in the Pacific Coast region, 10 subprograms in the Rocky Mountain region, and 12 subprograms in the South region.

Eligibility Criteria and Administrative Procedures

Property tax programs are based on a diverse set of criteria and administrative processes that ensure their uniform application. These programs, as defined by State laws and administrative regulations, encompass various aspects. This includes procedures for landowners, specific requirements that must be met by landowners or their properties for special tax benefits, and the necessity for proof of the landowners' adherence to ongoing eligibility standards. Some of these requirements could restrict agroforestry practices from qualifying for preferential assessment. Additionally, these programs outline consequences for noncompliance with these standards.

Acreage Requirements

Several States consider the parcel size while determining the eligibility for preferential assessment in agricultural and forest land programs. This could be problematic for agroforestry practitioners, particularly for small landowners, if acreage requirements are associated with individual land uses and not mixed agriculture-forest land uses. For example, Illinois' Wooded Acreage Assessment Transition Law and general property tax program require applicants to enroll forests of at least 5 contiguous acres in size; however, production of agricultural and horticultural crops and livestock grazing are not acceptable land uses on enrolled forest lands. Therefore, the combination of an acreage requirement with land use restrictions could limit the types of agroforestry practices a landowner may implement on enrolled lands.

In most cases, eligibility to participate in PPTPs for rural working lands is limited to properties of at least a certain acreage, whether contiguous or not (table 3). However, Iowa, Georgia, Maine, Minnesota, Rhode Island, and Tennessee also mandate properties be less than a certain acreage to qualify. Furthermore, the acreage criteria vary between single separate parcels and multiple contiguous parcels. For instance, the PPTP in Washington requires 5 acres for contiguous parcels and 20 acres for multiple parcels, with a reduction to 5 acres if certain income conditions are met. Alaska, Arkansas, Florida, Kansas, Mississippi, and Nebraska do not specify a minimum or maximum acreage in their property tax publications or other references.

Table 3—Minimum acreage requirements for forest land and agricultural programs by State

State[1]	Agriculture	Forest land
AL	5	5
AZ	10	NS
CO	NS	40
CT	0	25
DE[2]	10	10
GA	0	10
HI[3]	5	3
ID[2]	5	5
IL	NS	5
IN	0	10
IA	10	2
KY	10	10
LA[2]	3	3
ME	5	10
MD[2]	5	5
MA	5	10
MI[3]	NS	20
MN	10	20
MO	NS	2
MT[2]	20	15
NV	7	7
NH	10	10
NJ	NS	5
NM	1	1
NY	7	50
NC	10	20
ND	NS	10
OH[2]	10	10
OK	0	0
OR[3]	0	2
PA[2]	10	10
RI[2,3]	5	1
SC[2]	10	5
SD	20	20
TN	15	15
TX	0	0
UT	5	5
VT	25	25
VA	5	20
WA[2]	20	5
WV	NS	10
WI	NS	20

NS = Not specified

[1] State abbreviations specified in appendix A. States not listed, except California, do not specify a minimum acreage requirement. California is omitted because it is an outlier (i.e., 160-acre minimum for forest land and 100-acre minimum for agriculture).

[2] May qualify through income requirement if less than minimum acreage.

[3] Less of the acreage requirements for multiple programs in the State.

Regarding agricultural land, 28 States specify minimum acreage requirements (table 3). Connecticut, Georgia, Indiana, Oklahoma, Oregon, and Texas have no parcel size limitations for agricultural lands. The PPTP for agricultural lands in Wyoming only institutes a minimum acreage of 35 acres when the agricultural lands are part of a subdivision. Similar to forest land uses, New Mexico permits farmers with as few as 1 acre to enroll in their general property tax program for agriculture, whereas California's minimum is set at 100 acres; however, landowners with less than 100 acres may partner with neighbors in order to meet the minimum acreage requirement for agricultural preserves. The most common minimum acreage requirement for agricultural lands is 10 acres. In the context of forest land, 39 States have established minimum acreage criteria. Oklahoma and Texas do not impose any parcel size restrictions for forest lands. Within the States enforcing a minimum acreage requirement, New Mexico and Rhode Island allow parcels with as few as 1 acre to enroll. Similar to programs for agricultural lands, the most common minimum acreage requirement in the dataset is 10 acres for a single parcel of forest land. Forests in Colorado and New York must be at least 40 and 50 acres, respectively, to qualify for preferential assessment. Similar to California' PPTP for agriculture, California's PPTP for forest lands is noteworthy in terms of acreage requirements. If a zoning district does not mandate a minimal parcel lot size, the California Timberland Productivity Act requires a minimum lot size of 160 acres; however, the minimum requirement may be reduced by a planning commission. The minimum acreage requirement for horticultural lands is the same for agricultural lands, forest lands, or both in every State PPTP except Kentucky's general property tax program, Iowa's Forest and Fruit Tree Reservation Act, and North Carolina's Present Use Value program. More specifically, the Kentucky general property tax program requires 5 contiguous acres for horticultural land uses as opposed to 10 contiguous acres for forest and agricultural land uses. Iowa's fruit tree reservations must be between 1 and 10 contiguous acres as opposed to at least 2 contiguous acres (for forest reservations). The horticultural classification for North Carolina's Present Use Value program is 5 acres while eligible lands for the agricultural and forest land classifications must be at least 10 and 20 acres, respectively.

Some States allow farmland owners to enroll their forest lands or woodlands along with their agricultural lands in PPTPs, which may facilitate enrollment of agroforestry practices. States such as Indiana and Pennsylvania allow for woodlands of less than 10 acres to be classified as agricultural use and subject to preferential assessment. Maine's Farmland Program does not mandate a specific minimum or maximum acreage for forest lands to qualify in addition to agricultural or horticultural lands. Also of potential interest for agroforestry practices, Delaware, Idaho, Maryland, Montana, Ohio, Pennsylvania, Rhode Island, South Carolina, and Washington allow landowners with less than the minimum acreage requirement to qualify through a minimum annual or periodic income. Similarly, Louisiana allows landowners to qualify for the State's general property tax program through either a minimum acreage or a minimum income requirement. Oregon is also an interesting case, as its Non-Exclusive Farm-Use Zone Program mandates different income requirements depending on the size of the property.

Productivity Requirements

Annual or periodic income

PPTPs often necessitate a yearly or periodic income generated from the land (table 4). A landowner may be required to produce a profit or minimum income regularly after classification, demonstrate proof of income from eligible lands in certain years prior to applying for classification or enrollment, or produce a combination of the two. To illustrate, South Dakota mandates that land classified as agricultural must produce a gross income from the use equal to at least 10 percent of the land's taxable value when assessed as agricultural property in 3 of the 5 years prior to classification, or the owner must earn a minimum of $2,500 gross income annually from the agricultural use. Requiring a minimum income requirement either annually or periodically prior to or after enrollment may restrict some agroforestry practitioners from qualifying for a PPTP, as some agroforestry practices require longer harvest cycles.

Table 4—Management requirements for preferential property tax programs by region and land use classification

Productivity requirements	Region	Land use		
		Agriculture	Forest land	Horticulture
		States[1] with condition explicitly stated		
Annual or periodic income	N	DE, IA, ME, MD, MA, NH, NJ, NY, OH, PA, RI, VT, WV	MA,[2] PA[3]	DE, ME, MA, NH, NJ, OH, PA, RI, VT, WV
	PC	AK, CA, HI, OR, WA	HI[2]	WA
	RM	AZ, ID,[3] MT, NV, SD, WY	SD[2]	AZ, MT, NV, SD
	S	LA, NC, SC,[3] TN, TX	LA,[2] SC,[3] TX	LA, NC, SC,[3] TN, TX
Production of specific products	N	CT, DE, IL, IN, IA, ME, MD, MA, MI, MN, MO, NH, NJ, NY, OH, PA, RI, VT, WV, WI	CT, DE, IL, IN, IA, ME, MD, MA, MI, MN, MO, NH, NJ, NY, OH, PA, RI, VT, WV, WI	DE, IL, IA, ME, MA, MI, MN, MO, NH, NJ, OH, PA, RI, VT, WV
	PC	AK, CA, HI, OR, WA	AK, CA, HI, OR, WA	WA
	RM	AZ, CO, ID, KS, MT, NE, NV, NM, ND, SD, UT, WY	AZ, CO, ID, KS, MT, NE, NV, NM, ND, SD, UT, WY	AZ, KS, MT, NE, NV, NM, ND, SD, UT, WY
	S	AL, AR, FL, GA, KY, LA, MS, NC, OK, SC, TN, TX, VA	AL, AR, FL, GA, KY, LA, MS, NC, OK, SC, TN, TX, VA	AL, FL, GA, KY, LA, MS, NC, SC, TN, TX, VA
Written management plan	N	—	CT, DE, IL, IN, ME, MD, MA, MI, MN, MO, NH, NJ, NY, OH, RI, VT, WV, WI	—
	PC	HI	CA, HI, WA	—
	RM	—	CO, ID, ND, UT	—
	S	TX	AL, NC, SC, TN, TX, VA	—
Land use practice details	N	CT, DE, IL, IN, IA, ME, MD, MA, MI, MN, MO, NH, NJ, NY, OH, PA, RI, VT, WV, WI	CT, DE, IL, IN, IA, ME, MD, MA, MI, MN, MO, NH, NJ, NY, OH, PA, RI, VT, WV, WI	DE, IL, IA, ME, MA, MI, MN, MO, NH, NJ, OH, PA, RI, VT, WV
	PC	AK, CA, HI, OR, WA	AK, CA, HI, OR, WA	WA
	RM	AZ, CO, ID, KS, MT, NE, NV, NM, ND, SD, UT, WY	AZ, CO, ID, KS, MT, NE, NV, NM, ND, SD, UT, WY	AZ, KS, MT, NE, NV, NM, ND, SD, UT, WY
	S	AL, AR, FL, GA, KY, LA, MS, NC, OK, SC, TN, TX, VA	AL, AR, FL, GA, KY, LA, MS, NC, OK, SC, TN, TX, VA	AL, FL, GA, KY, LA, MS, NC, SC, TN, TX, VA

N = North; PC = Pacific Coast; RM = Rocky Mountain; S = South.

— = not applicable.

[1] State abbreviations specified in appendix A.

[2] Forest land is considered agricultural use and may be required to meet income requirement.

[3] Income requirement only required if acreage requirement is not met.

In the case of agricultural and horticultural land, income requirements are more frequently mandated in Northern States (table 4). In total, 28 and 19 States require agricultural and horticultural lands, respectively, to meet a minimum annual or periodic income requirement. Louisiana's PPTP mandates the longest period for its income requirement: average gross annual income of at least $2,000 in one or more of the designated classifications for the 4 years preceding classification. Interestingly, for the 11 States with periodic income requirements, 3 States—Maine, Vermont, and Washington—require landowners to meet an annual gross income requirement between $1,500 (Washington) and $2,000 (Vermont) in 3 of the 5 years preceding classification. Programs in Arizona, Iowa, and Texas do not state a specific income amount, only that the land be managed to earn a profit. Idaho and South Carolina only mandate a minimum income when farms are less than the minimum acreage. Alabama, Arkansas, Colorado, Connecticut, Florida, Georgia, Illinois, Indiana, Kansas, Kentucky, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Mexico, North Dakota, Oklahoma, Utah, Virginia, and Wisconsin do not specify an income requirement for any of their PPTPs for rural working lands.

In the context of forest land subprograms, 43 States do not impose any specific income requirements (table 4). In Hawaii, Louisiana, Massachusetts, and South Dakota, forest land is classified as an agricultural land use and may be subject to income requirements. As an illustration, Massachusetts' Chapter 61A-Agriculture, which includes fruit and nut tree-based land uses, requires that landowners earn $500 from conservation program payments and gross sales of qualifying products per year for parcels of 5 acres, with higher income requirements for larger parcels. Landowners must meet an income requirement for forest lands less than the minimum acreage in Pennsylvania and South Carolina to qualify for preferential assessment. Texas requires landowners to intend to produce income from timber and forest products but does not specify a minimum income amount. Furthermore, West Virginia, which allows woodlands to be included in the Farm Use Valuation Program, requires income from harvested wood products to be less than income from agricultural products. If income from timber harvested from woodlands in the Farm Use Valuation Program is greater than income from agricultural production, then the woodlands would be reclassified and assessed as commercial forest land for that year.

Production of specific products

For eligibility in PPTPs, landowners are frequently required to produce certain products, depending on the land use category of the program (table 4). In the case of agriculture and horticulture, the required products encompass farm outputs such as cultivated crops, livestock, nursery stock, or viticultural products. Of particular interest to this study, a few PPTPs for agriculture and horticulture specifically prohibit or limit the production or sale of timber and other forest products on enrolled lands. For example, Montana's general property tax program excludes the provision of growing timber from agricultural lands. Meanwhile, PPTPs such as Alabama's general property tax program allow enrollees to produce any combination of eligible products, including forest products, crops, and livestock.

While forest products are included as potential outputs that demonstrate required land uses in programs that feature each of the three land uses of interest, very few forest land subprograms include agricultural products as possible outputs that demonstrate the land use (table 4). For instance, reference material for Maine's Tree Growth Tax Law Program features maple syrup as an eligible output from enrolled lands. In fact, maple syrup and other maple sap products are the most frequently mentioned agricultural products in forest land subprograms in our dataset. Six forest land subprograms include maple syrup as eligible products: five subprograms in the North region and one subprogram in the Rocky Mountain region. Typically, for forest land programs, the products include timber and various other wood-based products. In some States, such as Iowa and Rhode Island, programs delineate which tree species are permissible.

Written management plan

To qualify for preferential assessment, parcels sometimes need to have a specific management plan in place, such as a forest management plan or stewardship plan. A management plan may present an additional barrier to landowners including those practicing agroforestry from qualifying for preferential assessment. In the case of agricultural programs, this requirement is limited to just two States, Hawaii and Texas, and is not a prerequisite for any State in horticultural subprograms (table 4). In Texas, only the wildlife management-focused agricultural subprogram requires a management plan.

Across the United States, 31 States mandate a requirement of a management plan for participation in the forest land subprogram (table 4). However, management plan requirements vary by county in Alabama, Ohio, and South Carolina. Regionally, the requirement for a management plan in the forest land subprogram is predominantly seen in the North, with 18 out of 20 States enforcing this requirement. Of the five States in the Pacific Coast region, only Oregon and Idaho do not require a management plan to participate in their PPTP for forest lands. In the Rocky Mountain and South regions, however, the requirement for a forest management plan as a condition for preferential assessment is less common, applicable in only 4 out of 12 States in the Rocky Mountain region and 6 out of 13 States in the South region.

Land use practice details

In our assessment of programs for agricultural, forest, and horticultural lands, we observed that nearly all necessitate landowners adhere to specific requirements regarding land use practices (table 4). These common requirements encompass the need to specify the production of particular products and their quantities, define permissible and prohibited management activities, stipulate a required percentage of land to be dedicated to production, and maintain land use practices or cover for a certain duration. Stocking, growth, and stand width requirements that are based on monoculture production systems are especially important to this analysis as they could restrict which agroforestry practices may qualify.

Twenty-four subprograms, including 1 agricultural subprogram, 21 forest land subprograms, and 2 horticultural subprograms, call for some type of stocking, product volume, or width requirement (table 4). The agricultural subprogram, Arizona's general property tax program, requires a minimum animal stocking rate on grazing lands. In most cases, the land use practices stipulated in PPTPs for agricultural lands are more general, such as the need to use lands for the classified use and commercial production of plants and livestock.

The forest subprograms with land use practice stipulations generally require a minimum forest stocking or forest crown or canopy width (table 4). As an example, Colorado's general property tax program mandates lands classified as timberlands be at least 10 percent stocked with forest trees, where forest trees are defined as woody plants with stem(s) that are generally greater than 12 feet in height at maturity and feature a defined crown (Colorado Rev. Stat. § 39-1-102). Colorado's program also specifies that enrolled forest land must have a crown width of at least 120 feet and clearings must not be more than 120 feet wide. States such as Connecticut and Delaware do not define a specific quantity but instead defer to the State foresters to determine if a property is adequately stocked. Furthermore, some forest subprograms mandate that enrolled lands produce at least a certain volume of merchantable material or tree growth annually. For example, Michigan's Qualified Forest Property Tax Program requires forest lands to produce an average volume of wood of at least 20 cubic feet per acre per year. The two horticultural subprograms, Iowa's Forest and Fruit Tree Reservation Act and Washington's general property tax program, necessitate landowners meet certain land cover requirements in terms of fruit tree stocking and growth of crops in containers. The majority of land use practice requirements for horticultural lands relate to where or how crops are cultivated, such as orchards or greenhouses.

Penalties

One objective of PPTPs is to prevent land use change of rural working lands to other land uses. Therefore, some programs are designed to discourage land use change. If the requirements of PPTPs are not being met including maintaining land use and land cover, participants may face certain penalties and legal consequences (table 5). We were interested in learning if adopting agroforestry practices would potentially trigger a penalty for landowners participating in PPTPs. We reviewed penalties for being disqualified from the program or when the preferential classification is removed, for failing to report land use change, and for being out of compliance without being disqualified from the program. We also evaluated deferred taxes, also referred to as recapture and rollback taxes, that must be paid when leaving a program voluntarily or involuntarily as a type of penalty.

Table 5—Potential penalties for not meeting requirements of preferential property tax programs by region and land use classification

Penalties	Region	Land use		
		Agriculture	Forest land	Horticulture
		States[1] with condition explicitly stated		
For being disqualified from the program or preferential classification is removed	N	CT, DE, IL, IN, ME, MD, MA, MI, MN, MO, NH, NJ, NY, OH, PA, RI, VT, WI	CT, DE, IL, IN, IA, ME, MD, MA, MI, MO, NH, NJ, NY, OH, PA, RI, VT, WI	DE, IL, IA, ME, MA, MI, MN, MO, NH, NJ, OH, PA, RI, VT
	PC	AK, CA, HI, OR, WA	CA, HI, OR, WA	WA
	RM	NV, UT	ID, NV, ND, UT	NV, UT
	S	AL, GA, KY, LA, SC, TN, TX, VA	AL, GA, KY, LA, SC, TN, TX, VA	AL, GA, KY, LA, SC, TN, TX, VA
For not reporting land use changes	N	DE, ME, NY	DE, ME, NY, WV	DE, ME
	PC	—	—	—
	RM	AZ, NV, NM	NV, NM	AZ, NV, NM
	S	AR, GA, LA, NC, SC, TX, VA	AR, GA, LA, NC, SC, TX, VA	GA, LA, NC, SC, TX, VA
Retroactive payment of taxes (deferred tax) when leaving the program	N	CT, DE, IL, IN, ME, MA, MI, MN, NJ, NY, OH, PA, WI	CT, DE, IL, IN, IA, ME, MD, MA, MI, MO, NJ, NY, OH, PA, WI	DE, IL, IA, ME, MA, MI, MN, NJ, OH, PA
	PC	AK, CA, HI, OR, WA	CA, HI, OR, WA	WA
	RM	CO, ID, NV, UT	ID, NV, UT	NV, UT
	S	AL, GA, NC, SC, TN, TX, VA	AL, GA, NC, SC, TN, TX, VA	AL, GA, NC, SC, TN, TX, VA
For being out of compliance (without being disqualified from program)	N	IN, PA	IL, IA, MA, MI, MO, OH, PA, WI	IA, PA
	PC	—	—	—
	RM	ND	ND	ND
	S	MS, SC	MS, SC, TX	MS, SC

N = North; PC = Pacific Coast; RM = Rocky Mountain; S = South.
— = not applicable.
[1] State abbreviations specified in appendix A.

For being disqualified from the program or preferential classification is removed

Penalties for disqualification or removal of the preferential classification range in severity from assessment at the non-preferentially assessed rate to monetary fees. Eighteen States in the North region, along with five in the Pacific Coast region, two in the Rocky Mountain region, and eight in the South region, have established penalty provisions for disqualification or reclassification of agricultural lands enrolled in PPTPs (table 5). For the forest land subprograms, penalties are enforced in 34 States, with 18 of them in the North region. Additionally, four States in the Pacific Coast region, four States in the Rocky Mountain region, and eight States in the South region also have such provisions. For horticultural subprograms, 14 States in the North region, 1 State in the Pacific Coast region, 2 States in the Rocky Mountain region, and 8 States in the South region implemented a penalty provision for disqualification. In most of these cases, disqualification or reclassification requires landowners to pay deferred taxes or a fee based on the market value of the property. However, in States such as Maryland and Washington, an additional penalty is levied upon disqualification. For the purpose of this analysis, we were interested in identifying reclassification penalties for landowners that trigger a land use change by adopting agroforestry. Some States, such as Massachusetts, Michigan, New Hampshire, Texas, Washington, and Wisconsin, do not mandate a penalty if preferentially assessed lands are reclassified to another qualifying use.

For not reporting land use change

Across the United States, 13 States have established penalty provisions under agricultural subprograms for landowners who fail to report land use changes, potentially affecting their eligibility for assessment (table 5). Among these, three are in the North region, three are in the Rocky Mountain region, and seven are in the South region. In the case of subprograms for forest lands, 13 States enforce penalties for failing to report land use change. This includes four States in the North region, two in the Rocky Mountain region, and seven in the South region. For horticultural subprograms, 11 States have instituted penalty provisions, with 2 in the North region, 3 in the Rocky Mountain region, and 6 in the South region. No States in the Pacific Coast region have such penalties for any of the subprograms assessed in this study.

Landowners generally are required to pay the deferred taxes or portion thereof for failing to provide timely notice of land use change; however, similar to penalties for disqualification or reclassification, States such as Maine levy a fee in addition to the deferred taxes. Enrolled landowners interested in adopting agroforestry in States with penalties for not reporting land use change may need to consult program administrators or county assessors in their State to determine if an agroforestry practice is considered a land use change, and if so, how to report the change to avoid a penalty.

Retroactive payment of taxes (deferred taxes) when leaving the program

Regarding agricultural subprograms across the United States, 29 States require a mandatory retroactive payment of taxes upon cancellation of eligibility (table 5). This includes 13 States in the North region, 5 States in the Pacific Coast region, 4 States in the Rocky Mountain region, and 7 States in the South region. In the context of forest land subprograms, 15 States in the North region, 4 States in the Pacific Coast region, 3 States in the Rocky Mountain region, and 7 States in the South region require payment of deferred taxes. In the horticultural subprograms, penalty provisions are in place in 10 States in the North region, 1 State in the Pacific Coast region, 2 States in the Rocky Mountain region, and 7 States in the South region. The number of years for the deferred taxes vary from a single year to 20 years depending on the State and PPTP. The majority of States require landowners to pay deferred taxes for the previous 3 to 7 years. Deferred taxes may act as a disincentive to adopt an agroforestry practice for interested landowners that would need to exit their PPTPs if the programs do not allow agroforestry.

For being out of compliance

States possess considerable authority to penalize noncompliance with tax program provisions. Specifically, for agricultural subprograms, five States have established provisions for penalizing noncompliance (table 5). This includes two States in the North region, one State in the Rocky Mountain region, and two States in the South region. Under forest land subprograms, 12 States are legally empowered to impose such penalties. Among these, eight States are in the North region, one State is in the Rocky Mountain region, and three States are in the South region. Similar to penalty provisions for failing to report land use change, no States in the Pacific Coast region have noncompliance penalties for any of the subprograms evaluated in this study. In States such as Indiana, Illinois, Missouri, North Dakota, and Texas, landowners are penalized for noncompliance by losing the opportunity for preferential assessment. Noncompliance penalties could present financial burdens to landowners practicing agroforestry if elements of the land use system are not permitted.

Property Tax Types

Regarding PPTPs for various land uses, modified-rate assessment tax types are predominantly used, whereas exemption and flat tax types are less common (table 6). Specifically, exemption tax types are utilized by only six States (Alaska, Delaware, Hawaii, Iowa, Michigan, and Rhode Island), and flat tax types are adopted by only four States (Michigan, Missouri, North Dakota, and Wisconsin). States in the Pacific Coast and South regions, except for subprograms in Alaska and Hawaii that exempt eligible forest lands, exclusively have modified-rate assessment types of PPTPs for rural working lands. Notably, some States have tax programs with multiple property tax types. For example, Delaware and Rhode Island employ both exemption and modified-rate tax types, Michigan uses exemption and flat tax types, and Missouri and Wisconsin have both flat tax and modified-rate types.

Table 6—Property tax types used under State preferential property tax programs for different land uses by region

Property tax type	Region	Land use		
		Agriculture	Forest land	Horticulture
		States[1] with condition explicitly stated		
Exemption	N	DE, MI	DE, IA, RI	IA, MI
	PC	—	AK, HI	—
	RM	—	—	—
	S	—	—	—
Flat tax	N	—	MI, MO, WI	—
	PC	—	—	—
	RM	—	ND	—
	S	—	—	—
Modified rate	N	CT, DE, IL, IN, IA, ME, MD, MA, MN, MO, NH, NJ, NY, OH, PA, RI, VT, WV, WI	CT, DE, IL, IN, ME, MD, MA, MI, MN, MO, NH, NJ, NY, OH, PA, RI, VT, WV	DE, IL, ME, MA, MN, MO, NH, NJ, OH, PA, RI, VT, WV
	PC	AK, CA, HI, OR, WA	CA, HI, OR, WA	WA
	RM	AZ, CO, ID, KS, MT, NE, NV, NM, ND, SD, UT, WY	AZ, CO, ID, KS, MT, NE, NV, NM, SD, UT, WY	AZ, KS, MT, NE, NV, NM, ND, SD, UT, WY
	S	AL, AR, FL, GA, KY, LA, MS, NC, OK, SC, TN, TX, VA	AL, AR, FL, GA, KY, LA, MS, NC, OK, SC, TN, TX, VA	AL, FL, GA, KY, LA, MS, NC, SC, TN, TX, VA

N = North; PC = Pacific Coast; RM = Rocky Mountain; S = South.

— = not applicable.

[1] State abbreviations specified in appendix A.

Land Valuation Approaches

Among the three land valuation approaches, the most commonly used is the income or productivity approach for agricultural, forest land, and horticultural subprograms (table 7). This method, which is widely used for calculating use values, typically considers factors such as soil quality and vegetation type to estimate potential earnings from the sale of specific products (Anderson 2012). It is common for States to employ more than one valuation approach. The comparable sales approach is more common among the forest land programs. Notably, only two States have adopted the cost approach: California for its agricultural subprogram, and South Dakota for its agricultural, forest land, and horticultural subprograms. Preferential property tax programs that utilize an income or productivity approach to valuing land may present a disadvantage for agroforestry practices, as these values are generally based on income from a monoculture system (e.g., a single crop or product). If the income used for the land valuation is greater than what is feasible to produce through agroforestry, then agroforestry practitioners may miss out on tax savings.

Table 7—Land valuation approaches used under State preferential property tax programs for different land uses by region

Land valuation approach	Region	Land use		
		Agriculture	Forest land	Horticulture
		States[1] with condition explicitly stated		
Income or productivity	N	CT, DE, IL, IN, IA, ME, MD, MA, MO, NH, NJ, NY, OH, PA, RI, VT, WV, WI	CT, IL, ME, MD, MA, NH, NJ, OH, PA, RI,[2] VT, WV	DE, IL, IA, ME, MO, MA, NH, NJ, OH, PA, RI, VT, WV
	PC	AK, CA, HI, OR, WA	CA, HI, WA	HI, WA
	RM	AZ, ID, KS, MT, NE, NV, NM, ND, SD, UT, WY	ID, KS, MT, NE, NV, NM, SD, UT, WY	KS, MT, NE, NV, NM, ND, SD, UT, WY
	S	AL, AR, FL, GA, KY, LA, MS, NC, OK, SC, TN, TX, VA	AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, TX, VA	AL, FL, GA, KY, LA, NC, OK, SC, TX, VA
Comparable sales	N	MI, MN	IL, IN, IA, ME, MI, MN, NY, OH, WV, WI	MI, MN
	PC	AK, CA, HI	AK, HI, OR	—
	RM	AZ, CO, KS, NE, SD	AZ, CO, ID, KS, NE, SD	KS, NE, SD
	S	GA, TN	GA, OK, TN	GA, TN
Cost approach	N	—	—	—
	PC	CA	—	—
	RM	SD	SD	SD
	S	—	—	—

N = North; PC = Pacific Coast; RM = Rocky Mountain; S = South.

— = not applicable.

[1] State abbreviations specified in appendix A.

[2] Trees and land exempt from taxation for 15 years.

Land Use and Agroforestry Practice Characteristics

Due to the modifications we made to the land use and agroforestry practice characteristics (e.g., differentiating between types of buffers), we were not able to combine results from Chizmar et al. (2022) to this portion of the analysis. As expected, the agricultural, forest, and horticultural land use characteristics associated with agriculture, forest land, and horticulture, respectively, generally are emphasized in tax-related publications (table 8). For example, commercial (timber) species are emphasized, or related to the main objective, in 50 out of the 69 forest land subprograms, whereas commercial production of agricultural or horticultural products is emphasized in 48 of the 58 agricultural and 33 out of the 38 horticultural subprograms. Of note, coded characteristics across categories do not sum to the number of subprograms by land use due to some subprograms not explicitly stating land use characteristics. The eligibility of agricultural and forest land use characteristics in programs associated with different land use classifications, such as the eligibility of commercial tree species in PPTPs for agriculture, is of notable interest to this study. Timber and nontimber tree species are emphasized in 10 and 17 agricultural subprograms, respectively. Tree species are acceptable, or allowed within certain limits, in 28 (timber species) and 31 (nontimber species) agricultural subprograms. Furthermore, timber species are unacceptable, or land use characteristics that are rarely permitted, in six agricultural subprograms and four horticultural subprograms.

Table 8—Counts of coded land use and agroforestry practice characteristics by land use for the 45-State region, excluding pilot States

		Agriculture			Forest land			Horticulture		
	Coded characteristics[1]	E	A	U	E	A	U	E	A	U
		Characteristics[2] explicitly stated								
Agriculture-related	Commercial agricultural/horticultural products	48	4	0	11	9	14	33	2	1
	Grazing of livestock	42	10	0	10	8	15	26	1	1
	Eligibility of tree buffers: riparian	1	11	0	1	10	1	1	5	0
	Eligibility of tree buffers: non-riparian	0	26	0	1	13	3	0	13	0
	Fallow land or wasteland included	0	15	0	0	7	2	0	8	0
Forestry-related	Commercial (timber) tree species	10	28	6	50	11	1	7	16	4
	Nontimber tree species	17	31	0	16	29	4	18	17	0
General management	Include residential area in assessment	0	7	17	0	2	23	0	3	11
	Agriculture and forestry interface	11	32	1	4	11	11	8	23	1
	Leasing permitted	0	9	0	0	9	0	0	4	0

[1] Key for coding: E = emphasized (related to main objective, particularly noteworthy practice, mentioned by name); A = acceptable (allowed within limits, permitted but not primary objective); U = unacceptable (not permitted or rarely permitted on a case-by-case basis).
[2] Coded characteristics across categories do not sum to the number of subprograms by land use due to some subprograms not explicitly stating land use characteristics.

According to our findings related to agricultural land use characteristics in forest land subprograms, fewer opportunities may exist for agroforestry practices to qualify for preferential assessment as forest land (table 8). Specifically, production of commercial agricultural or horticultural products is emphasized in 11 forest land subprograms, acceptable in 9 forest land subprograms, and unacceptable in 14 forest land subprograms. Likewise, grazing of livestock is emphasized, acceptable, and unacceptable in 10, 8, and 15 subprograms for forest lands, respectively. As a result, many PPTPs for forests may not allow integrated land uses that feature agricultural or horticultural land use characteristics. However, mixed agriculture-forestry land uses are emphasized in 11 agricultural subprograms, acceptable in 32 agricultural subprograms, and unacceptable in 1 agricultural subprogram. Similarly, the 38 horticultural subprograms identified in the review may allow certain agroforestry practices due to their inclusion of fruit trees and integrated land uses. For instance, nontimber species are emphasized and acceptable in 18 and 17 horticultural subprograms, respectively. In addition, mixed agriculture-forestry land uses are either emphasized or acceptable in 31 of the 38 subprograms for horticulture.

The eligibility of tree-based buffers in riparian and non-riparian areas may also have implications for the potential compatibility of certain agroforestry practices in PPTPs. Tree-based buffers in riparian areas are emphasized in one subprogram for each land use classification (table 8). Woody buffers in riparian areas may be acceptable land use characteristics in 11 agricultural, 10 forest land, and 5 horticultural subprograms. Meanwhile, tree buffers in non-riparian areas are emphasized in one forest land subprogram. Similar to our findings related to riparian buffers, tree buffers in non-riparian areas are potentially acceptable in each of the PPTP land use categories. It is important to note that tree-based buffers in riparian and non-riparian areas may be categorized as unacceptable land use characteristics in one and three forest land programs, respectively. For complete results of the land use and agroforestry characteristics, please refer to the supplemental materials available at http://doi.org/10.2737/WO-GTR-106.

Agroforestry Practices Potentially Permitted

Using the results from the land use and agroforestry characteristics and the management requirements, we deduced that 1 of the 5 agroforestry practices may be an acceptable land use in PPTPs in each of the 50 States. Sixteen States may allow each of the 5 agroforestry practices to qualify, while 11 States may allow 4 agroforestry practices, 7 States may allow 3 agroforestry practices, 12 may allow 2 agroforestry practices, and 4 may allow 1 agroforestry practice (fig. 3). Of the 16 States where each of the agroforestry practices may be eligible for preferential assessment, 7 of these States are in the North region, 1 is in the Pacific Coast region, 3 are in the Rocky Mountain region, and 5 are in the South region. In terms of programs and subprograms, agroforestry practices may be allowed in 64 of 78 programs and 124 of 165 subprograms.

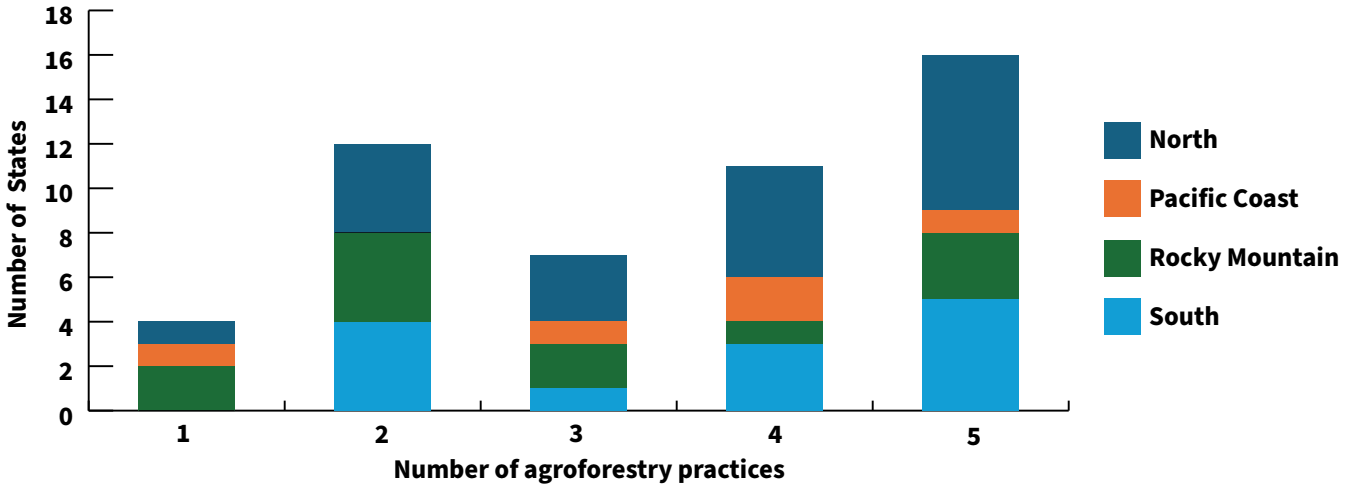

Figure 3—Number of States per region where agroforestry practices may qualify for preferential property tax programs for agriculture, forest land, and horticulture by practice number.

Of the 5 agroforestry practices, we found that silvopasture may qualify for PPTPs in the most States (50 out of 50 States), programs (56 out of 78 programs), and subprograms (98 out of 165 subprograms) (fig. 4, tables 9 and 10). Forest farming may be eligible for preferential assessment in 40 States, 44 programs, and 78 subprograms in the 50-State region. Furthermore, alley cropping may be allowed in 34 States, 38 programs, and 70 subprograms. Windbreak configurations follow closely behind alley cropping systems, potentially qualifying for preferential assessment in 31 States, 36 programs, and 61 subprograms. Finally, riparian forest buffers may be eligible for PPTPs for agricultural, forest, and horticultural lands in 22 States, 23 programs, and 40 subprograms.

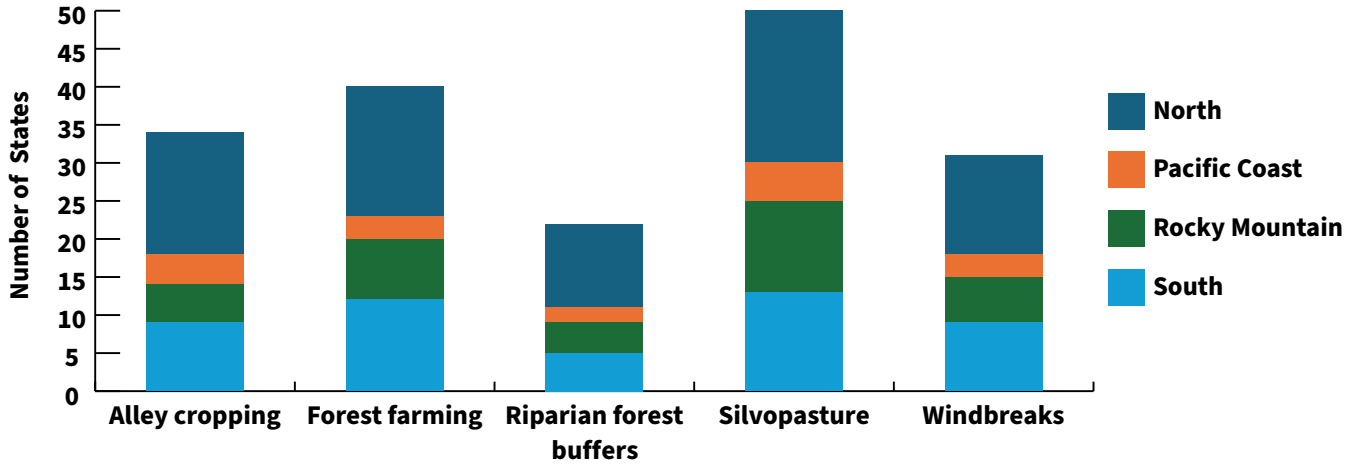

Figure 4—Number of States per region where agroforestry practices are potentially eligible for preferential property tax programs for agriculture, forest land, and horticulture by agroforestry practice.

Table 9—States that may allow agroforestry practices in preferential property tax programs by agroforestry type, region, and land use

Region	Land use	Agroforestry type allowed				
		Alley cropping	Forest farming	Riparian forest buffers	Silvopasture	Windbreaks
		States[1] with condition explicitly stated				
North	A	CT, DE, IL, IN, IA, ME, MD, MN, MO, NY, OH, PA, VT, WV, WI	CT, DE, IL, IN, IA, MD, MA, MI, NJ, NY, OH, PA, RI, VT, WI	CT, DE, MN, MO, OH, PA, VT	CT, DE, IL, IN, IA, ME, MD, MA, MI, MN, MO, NH, NJ, NY, OH, PA, RI, VT, WV, WI	CT, DE, IL, IA, ME, MD, MN, NY, OH, PA, VT, WV, WI
	F	MD	MD, MA, NH, VT, WV, WI	DE, IL, ME, NY, WI	DE, MD, MA, RI	IA, MD
	H	DE, IL, ME, MO, NH, OH, PA, VT, WV	IL, MA, MI, NJ, OH, PA, RI, VT	OH, PA, VT	DE, IL, MA, MI, MO, NJ, OH, PA, RI, VT, WV	IL, OH, PA, VT, WV
Pacific Coast	A	CA, HI, OR, WA	HI, OR		AK, CA, HI, OR	HI, OR
	F	CA	CA	CA, WA	CA, OR, WA	CA
	H	WA	—	—	—	—
Rocky Mountain	A	KS, MT, NE, SD, WY	KS, NV, NM, SD, UT	SD	AZ, CO, ID, KS, NE, NV, NM, ND, SD, UT, WY	KS, MT, ND, SD
	F	KS	KS, MT, NM, NE, WY	CO, MT, NE, SD	KS, MT, NM	CO, KS, NE, ND
	H	KS, MT, NE, SD, WY	KS, NV, NM, SD, UT	NE, SD	AZ, KS, NE, NV, NM, SD, UT, WY	KS, MT, SD
South	A	FL, GA, KY, LA, MS, NC, OK, TX, VA	AR, FL, GA, KY, LA, NC, OK, SC, TN, TX, VA	FL, GA, KY, OK, TX	AL, AR, FL, GA, KY, LA, MS, NC, OK, SC, TN, TX, VA	FL, GA, KY, LA, MS, NC, OK, TX, VA
	F	FL, GA, KY, OK	AL, FL, GA, KY, OK, SC	FL, GA, KY, OK, TX	AL, FL, GA, KY, SC	FL, GA, KY, OK, TX
	H	FL, GA, KY, LA, MS, NC, TX, VA	FL, GA, NC, SC, TN, TX, VA	FL, GA, TX	AL, FL, GA, MS, SC, TN, TX	FL, GA, MS, NC, TX, VA

A = agriculture; F = forest land; H = horticulture.

— = not applicable.

[1] State abbreviations specified in appendix A.

Table 10—Subprogram count and percentage that may allow agroforestry practices by land use and region

Land use	Region	Total subpro-gram	Alley cropping		Forest farming		Riparian forest buffers		Silvopasture		Windbreaks	
			Count	%	Count	%	Count	%	Count	%	Count	%
Agriculture	N	22	16	72.73	16	72.73	7	31.82	21	95.45	14	63.64
	PC	9	6	66.67	4	44.44	0	0	6	66.67	4	44.44
	RM	12	5	41.67	5	41.67	2	16.67	11	91.67	4	33.33
	S	15	11	73.33	13	86.67	6	40	15	100	11	73.33
Forest land	N	31	1	3.23	6	19.35	5	16.13	5	16.13	2	6.45
	PC	11	1	9.09	1	9.09	2	18.18	4	36.36	1	9.09
	RM	12	1	8.33	5	41.67	4	33.33	3	25	4	33.33
	S	15	5	33.33	7	46.67	6	40	6	40	6	40
Horticulture	N	15	9	60	8	53.33	3	20	11	73.33	5	33.33
	PC	1	1	100	0	0	0	0	0	0	0	0
	RM	10	5	50	5	50	2	20	8	80	3	30
	S	12	9	75	8	66.67	3	25	8	66.67	7	58.33
Total		**165**	**70**	**42.42**	**78**	**47.27**	**40**	**24.24**	**98**	**59.39**	**61**	**36.97**

N = North; PC = Pacific Coast; RM = Rocky Mountain; S = South.
Percent = [(Count) / (Total subprogram)] × 100

According to our results, agroforestry practices may have the most opportunity to qualify for agricultural and horticultural PPTPs, especially if those land use systems integrate nut- or fruit-producing trees. In the 58 agricultural subprograms and 38 horticultural subprograms, silvopasture, alley cropping, and forest farming are the most frequently permitted agroforestry types according to our analysis (table 10). More specifically, 53 agricultural subprograms and 27 horticultural subprograms may allow silvopasture to qualify for preferential assessment, whereas 38 agricultural subprograms and 24 horticultural subprograms may allow alley cropping. Forest farming follows closely behind alley cropping, potentially being permitted in 38 agricultural subprograms and 21 horticultural subprograms. Furthermore, windbreaks may be eligible in 33 agricultural subprograms and 15 horticultural subprograms, and riparian forest buffers may be permissible in 15 agricultural subprograms and 8 horticultural subprograms.

While we found agroforestry practices may be eligible for agricultural and horticultural subprograms in more instances, forest land subprograms may also present opportunities for agroforestry adopters to qualify for preferential assessment (table 10). Over one-quarter of the forest land subprograms may allow forest farming, riparian forest buffers, and silvopasture. Notably, forest farming, particularly cultivation of maple products, may qualify for 19 forest land subprograms. Silvopasture and riparian forest buffers may qualify for 18 and 17 forest land subprograms, respectively. As many forest land subprograms require forests to meet certain size requirements such as width of forest stands, opportunities for windbreaks and alley cropping are more limited. Specifically, windbreaks may be eligible for 13 forest land subprograms, while alley cropping may be permissible in 8 forest land subprograms.

It is important to note that some States directly support certain agroforestry practices in programs for land use classifications other than agriculture, forest land, and horticulture. We noted these programs as we completed our analysis. Some of the programs relevant to agroforestry but not specifically for agricultural, forest, and horticultural land uses include Illinois' preferential assessment of vegetative filter strips and non-clearcut areas that border water bodies. Indiana also preferentially assesses windbreaks and filter strips adjacent to bodies of water. Furthermore, programs for open space land use classifications may present opportunities either directly or indirectly for agroforestry practices. While these were outside our original scope, we documented programs that may be of interest in future research on land use incentives for agroforestry and other types of mixed land uses.

DISCUSSION

Our findings reveal that among the five agroforestry types explored in this study, silvopasture and forest farming are the most common types that may be eligible under preferential classifications for agricultural, forest, and horticultural lands. Further, PPTPs for agriculture may provide more opportunities for agroforestry practices as many allow landowners to enroll forested lands, especially small-acreage forests and woodlots, that are adjacent to agricultural lands. Chizmar et al. (2022) also found forest farming and silvopasture to likely be eligible in the most cases among the five pilot States and recognized agricultural PTPPs for potentially providing the most opportunities for agroforestry practices. The national review of State PPTPs suggests that several eligibility requirements and program characteristics of individual PPTPs can serve as an opportunity or a barrier for agroforestry practitioners to participate in State PPTPs for agricultural, forest, and horticultural lands. In the following section, we discuss primary opportunities and barriers for each agroforestry practice.

Alley cropping system featuring corn, hybrid poplar, and black locust at the 4-H Memorial Camp Demonstration Farm in Monticello, IL. Courtesy photo by Savanna Institute & Canopy Farm Management.

Alley Cropping

Several State agriculture and horticulture tax programs may allow alley cropping. More specifically, one or more of these programs permit the inclusion of trees, especially fruit and nut trees, as agriculture or in addition to agriculture or horticulture, which some landowners may prefer over pure timber species that provide income streams on longer time horizons (Mattia et al. 2018). At least 31 States specifically list both (1) fruits and vegetables or grasses or (2) nuts and vegetables or grasses as eligible products produced on enrolled lands. We deduced that 22 of these States may allow alley cropping. In Illinois,

which we found may allow alley cropping in the State's PPTP for agriculture and horticulture, USDA's Natural Resources Conservation Service features alley cropping as a conservation practice standard. In guidance documents, the organization lists both nut- and fruit-producing species as examples of tree species to include in alley cropping systems (USDA NRCS 2018). Similarly, California's Williamson Act Program specifically allows the cultivation of fruit- and nut-bearing trees on enrolled lands. As a result, PPTPs that allow alley cropping systems with nut or fruit trees may help support food security (Lovell et al. 2018).

Despite potential opportunities, alley cropping may have challenges, including minimum land cover requirements and restrictions to produce agriculture crops on enrolled lands, in qualifying for PPTPs for forest lands. For instance, Virginia's general property tax program mandates enrolled forests feature at least 40 percent of "normal stocking of forest trees." In an analysis by Cary and Frey (2020), the base loblolly pine (*Pinus taeda*) plantation scenario included 545 trees per acre (8- x 10-foot spacing), while the alley cropping scenarios included 124 trees per acre (8- x 8-foot spacing, 80-foot alleys) and 227 trees per acre (8- x 8-foot spacing, 40-foot alleys). Therefore, the alley cropping scenarios contained 22.8–41.7 percent of the number of trees that the loblolly pine plantation scenario contained. Landowners with alley cropping systems similar to the 80-foot alley configuration, which Cary and Frey (2020) found to provide greater financial returns, may not be able to qualify for the forest classification of Virginia's PPTP even if the subprogram allows the production of agricultural crops on enrolled land.

Goldenseal patch in a forest farming system in Princeton, WV. Courtesy photo by Katie Trozzo.

Forest Farming

Some State PPTPs specifically mention a particular agricultural or forest product as a qualifying use, which may offer an opportunity for qualification of forest farming practices in PPTPs. For instance, maple syrup production is explicitly stated as an eligible practice for State PPTPs in Maine, New Hampshire, New Mexico, Vermont, and West Virginia. Targeted inclusion of maple syrup production

may present a substantial opportunity to foster the growth of the industry as Farrell (2013) estimated that 10 U.S. States with commercial production of maple syrup were tapping less than 3 percent of potential maples (*Acer* spp.). Furthermore, other State PPTPs, particularly those that characterize trees, woodlands, forests, and their associated products as agriculture, may permit forest farming indirectly through inclusion of forest products. To illustrate, Connecticut includes woodlands under the definition of farmland for purposes of property taxation (Connecticut Gen. Stat. § 12-107b.). In a different section of the State's general statutes, the definition of agriculture features "the production or harvesting of maple syrup or maple sugar, or any agricultural commodity, including lumber, as an incident to ordinary farming operations or the harvesting of mushrooms…" (Connecticut Gen. Stat. § 1-1 (q)). As a result, maple syrup and mushroom forest farming operations on woodlands enrolled as farmland in Connecticut's general property tax program may be allowed.

However, it is important to note that forest farming operations that qualify for PPTPs for agriculture or horticulture will need to meet annual or periodic income requirements in at least 20 States. Annual income requirements in 14 States may be particularly burdensome for landowners with forest farming operations on longer harvest schedules. For example, in States such as Maryland that may permit forest farming in one of their PPTPs for agriculture, forest farming operators would be expected to generate $2,500 in sales on average annually depending on farm size. For log-grown shiitake mushrooms, which could produce one to two crops in a year and may sell for a conservative price of $10 per pound (Gabriel 2022), a landowner would need to produce up to 250 pounds of shiitakes to meet Maryland's PPTP income requirement, if no other products are being sold that year. Given that a log may produce 3 to 4 pounds of mushrooms per year, a landowner may need anywhere from 63 to 84 logs to generate the necessary production (Mudge 2019). In comparison, cultivating medicinals such as American ginseng (*Panax quinquefolius*) in forests may be more problematic for income requirements as harvests generally occur after 6 years from a seed or 4 years if transplanted on average (Burkhart and Jacobson 2009). Only one out of the eight medicinal forest farming operations modeled by Burkhart and Jacobson (2009) had harvest rotations of 1 to 2 years. The seven other products were harvested after 3 to 8 years (Burkhart and Jacobson 2009). Consequently, landowners hoping to qualify for preferential assessment may need to strategically plan their forest farming operations to ensure they are producing enough annual revenue from product sales to maintain eligibility.

Riparian forest buffers surrounding Bear Creek in Iowa. USDA Natural Resources Conservation Service photo.

Riparian Forest Buffers

Similar to maple syrup production, riparian forest buffers are directly promoted in PPTPs in at least 11 States, either in PPTPs for agricultural, forest, or horticultural lands (Georgia, Minnesota, Ohio, and South Dakota) or PPTPs for other classifications such as buffers, vegetative filter strips, or open space (Illinois, Indiana, Massachusetts, North Carolina, Oregon, Virginia, and Washington). Buffers of various widths and acreages may qualify for preferential assessment in these States, which could provide opportunities for both small- and large-acreage landholdings. For example, buffers of widths between 20 and 75 feet are eligible for Indiana's filter strip classification, and the statute does not specify any other acreage restrictions such as minimum or maximum parcel size. Similarly, Virginia's special assessment program for open space land stipulates that riparian forest buffers are at least 35 feet wide but does not include any other language regarding size requirements. According to the Natural Resources Conservation Service national practice standard (USDA NRCS 2020b), buffer widths of at least 35 feet are recommended to support soil and aboveground carbon storage benefits. Therefore, PPTPs that allow riparian forest buffers of at least this width may provide opportunities for landowners to manage for agriculture and forestry objectives that sustain beneficial nutrient cycles.

Productivity, in terms of tree growth and income, and wood product harvest requirements of PPTPs could restrict the eligibility of certain riparian forest buffers. Riparian forest buffers, especially those that are highly productive (e.g., Fortier et al. 2013), may support wood volumes sufficient for qualification for PPTPs for forest lands in States with wood production requisites, such as Massachusetts' Qualified Forest Property Tax Program. However, many PPTPs for forest lands require landowners to harvest wood products from enrolled lands. Landowners enrolled in PPTPs for agriculture and horticulture may also need to harvest wood products from riparian forest buffers to meet income requirements, depending on the income generated from other farm products. Forestry best management practices, which may be nonregulatory, quasi-regulatory, or regulatory according to State policy, may restrict timber harvests or mandate a minimum canopy cover or stocking within a certain distance from water bodies (Adams 2007, Blinn and Kilgore 2001, Clinton 2011, Cristan et al. 2018). As a result, to qualify for a PPTP for forest or agricultural lands, a riparian forest buffer may need to be relatively large depending on the site productivity, total parcel size, other land uses, and PPTP requirements in order to satisfy productivity requisites. Consequently, productivity and harvest requirements could be particularly burdensome for small-acreage landowners looking to adopt riparian forest buffers, potentially restricting their access to tax savings.

A cattle-pine silvopasture system in Jakin, GA. USDA Forest Service photo by Richard Straight.

Silvopasture

State agricultural property tax programs may present significant opportunities for silvopasture as we found that most agricultural subprograms allow trees and grazing of livestock on enrolled lands. For instance, Wisconsin's PPTP for agriculture provides tax benefits for woodlands that are used for livestock grazing (Wisconsin Department of Revenue 2024). Wisconsin farmers that participated in focus group discussions and interviews between 2014 and 2019 indicated that property taxes acted as economic incentives for promoting woodland grazing (Mayerfeld et al. 2023). According to the 2022 Census of Agriculture (USDA NASS 2024), nearly 750,000 agricultural producers own over 72 million acres of woodlands, 24 million acres of which are wooded pasture. Farmers with cropland or pasture and woodlands currently practicing or hoping to adopt silvopasture may be able to qualify for preferential assessment in 53 of the 58 agricultural subprograms.

However, silvopasture practitioners may face significant challenges when enrolling in PPTPs for forest lands across various States due to eligibility criteria, including canopy cover and timber production requirements, and the prohibition of cattle grazing. For instance, California's Timberland Productivity Act allows silvopasture; however, it stipulates that timberland produce a minimum 15 cubic feet per acre annual volume of wood fiber, which may conflict with the balance of tree cover and grazing areas essential to silvopasture. Similarly, PPTPs for forest lands in States such as Arizona, Colorado, and Idaho exclude livestock grazing on enrolled forest lands, preventing silvopasture practices from qualifying for these programs. These policy stipulations align with the historical perception of livestock grazing in forests in the United States as potentially destructive to forest health and function (Belsky and Blumenthal 1997, Borman 2005, Mayerfeld et al. 2016). Nevertheless, in certain parts of Wisconsin, positive perceptions among natural resource professionals and farmers toward silvopasture increased as research, outreach, and discussions on the land use practice grew over time (Mayerfeld et al. 2023). Accordingly, a synthesis of research on silvopasture found that shortages of information, assistance, and demonstrations are primary challenges to silvopasture adoption identified by producers and natural resource professionals, and a lack of understanding of the practice among professionals can lead to negative perceptions and a lack of support (Smith et al. 2022).

A windbreak protecting cropland in South Dakota. Courtesy photo by South Dakota Department of Agriculture and Natural Resources.

Windbreaks

Windbreak configurations in terms of height, density, and width, among other factors, play a role in the benefits provided by the conservation practice. Typical widths of windbreaks to protect cropland are between 16 and 52 feet (USDA NRCS 2020a), depending on the types of vegetation and number of rows. This indicates that even narrow windbreaks can provide benefits to landowners depending on their land attributes and needs. Many agriculture tax programs do not specify width requirements for windbreaks or eligible lands in general, which could be an opportunity for landowners with narrow windbreaks to qualify for PPTPs. For instance, Connecticut's general property tax program allows windbreaks to qualify without any size mandates. Only California, Colorado, Indiana, Iowa, and North Dakota specify some form of width requirement for enrolled lands. Colorado mandates the largest width requirement: a 400-foot minimum. However, this width requirement is for the entire lot, which may still present opportunities for even small landowners hoping to enroll lands with windbreaks.

Nevertheless, tree stocking and cover requirements in PPTPs for forest lands could act as barriers to the preferential assessment of windbreaks. In Colorado, the general property tax program allows windbreaks but requires lands be at least 10 percent stocked by forest trees of any size (forest land classification). Landowners that must include tree stocking of at least 10 percent may experience lower economic returns than if their farms consisted of 5 percent or less of trees (Ballesteros-Possu et al. 2017, Helmers and Brandle 2005), which may discourage program participants with profit maximization objectives from establishing windbreaks depending on the tax benefits. Iowa's Forest and Fruit Tree Reservation Act similarly outlines distinct width, acreage, and stocking requirements. According to the Iowa Department of Natural Resources (2024), the criteria include having at least 1 and 2 contiguous acres with approximate widths of at least 66 feet and containing at least 70 and 200 growing trees on each acre for forest and fruit tree reservations, respectively. To mitigate potential barriers to preferential assessment, landowners hoping to integrate windbreaks into their production systems should be knowledgeable of tree stocking and cover requirements.

Policy Implications

In addition to other strategies, rural working land uses that remove greenhouse gases from the atmosphere may help support the needs of the growing global population (Almaraz et al. 2023). Agroforestry has been recognized as a multifunctional, integrated land use system that provides both economic and ecological benefits to communities while also enhancing resilience of working lands to disturbances (Schoeneberger et al. 2017, Walthall et al. 2012). As such, agroforestry fits well into sustainable agriculture and forestry, and various incentive programs such as Farm Bill programs are increasingly adding agroforestry practices to their list of eligible activities (Mayerfeld et al. 2023, USDA NRCS 2023).

Including agroforestry practices under preferential assessments could lead to significant tax savings (Kilgore et al. 2017), which may increase the profitability of agroforestry systems so that they are more financially competitive with alternative land uses and attractive to potential adopters (Valdivia et al. 2012). Since the majority of PPTPs across the country may allow for agroforestry practices, PPTPs may provide financial assistance to landowners already practicing or hoping to adopt agroforestry (Valdivia et al. 2012). As described in the discussion section, this has been done in some States that have programs and classifications in PPTPs that promote forest farming, riparian forest buffers, and windbreaks. Extension, outreach and engagement opportunities, and training of landowners have been found to be significant factors in increasing agroforestry awareness and adoption (Pattanayak et al. 2003, Valdivia et al. 2012), which could provide opportunities for landowners to learn about agroforestry systems that may qualify for their State-specific PPTPs or other incentive programs. Likewise, case studies and success stories specifically related to how practitioners designed systems to qualify for such programs would be useful to other landowners, natural resource professionals, and tax advisors (Chizmar et al. 2022). In fact, some States include examples of land use systems in guides, manuals, and other publications to provide models of eligible and ineligible properties (e.g., Wisconsin Department of Revenue 2024).

CONCLUSION

State PPTPs for rural working lands reduce property tax burdens for qualified lands, generally with the objective of promoting continued use and land cover. Agroforestry practices, which include alley cropping, forest farming, riparian forest buffers, silvopasture, and windbreaks, may or may not qualify for PPTPs for agricultural, forest, and horticultural lands due to the integrated nature of the land uses. The objective of this study was to evaluate the potential inclusion of agroforestry practices in PPTPs for agricultural, forest, and horticultural land uses in the United States. We reviewed property tax statutes and related publications for PPTPs in 45 States using the methodology established by Chizmar et al. (2022). Accordingly, when possible, we compiled our findings with those of Chizmar et al. (2022) to facilitate examination of regional trends and provide a comprehensive national analysis of PPTPs for agricultural, forest, and horticultural lands. In addition to program administration and procedural details, we extracted eligibility requirements to determine the potential opportunities and challenges for agroforestry adopters to participate in the PPTPs.

We identified a total of 78 programs in the 50-State region, which we subcategorized by land use into 165 subprograms. We found that every State may allow at least one of the five agroforestry practices to qualify for preferential assessment. In fact, each of the 5 agroforestry practices may be eligible in PPTPs in 16 States, including 7 States in the North region, 1 in the Pacific Coast region, 3 in the Rocky Mountain region, and 5 in the South region. In the 64 programs that may permit at least 1 agroforestry practice, silvopasture (56 programs) and forest farming (44 programs) were determined to have the most potential opportunities for inclusion. Our results suggest that riparian forest buffers may be the least permitted agroforestry practice; however, riparian forest buffers in several States may qualify for PPTPs for land uses other than agriculture, forestry, and horticulture. Furthermore, we found that agricultural and horticultural subprograms may be more welcoming of agroforestry practices than forest land subprograms due to the restrictions common in forest land use classifications and the frequent inclusion of trees in agricultural classifications.

This study has some limitations. Notably, not all agroforestry practices explored in this study were clearly stated in the PPTPs for agricultural, forest, and horticultural lands. We developed a methodological framework similar to Chizmar et al. (2022), which was based on Kilgore et al. (2017), to assess if agroforestry practices were eligible for preferential assessment based on the emphasized, acceptable, and unacceptable land use characteristics described in tax guides and manuals and other supplementary sources. Since agroforestry practices are usually not explicitly mentioned in tax manuals, land use decision making and determinations could be challenging for landowners and tax professionals not familiar with both agroforestry practices and PPTPs, which may affect the adoption of agroforestry practices and participation in these vital tax saving programs. Similarly, the level of information available for each State can vary substantially as some legislative codes, assessment manuals, and other publications are quite extensive and include explicitly defined eligible and ineligible land uses, while other States may provide limited information in their codes and regulations and may not share supporting publications with the public. Further, since much of the information utilized in this study was collected from legislative codes, regulations, and administrative rules, our findings for a certain State may no longer be accurate or relevant following a change in policy or regulation.

Accordingly, we recommend this analysis be repeated regularly (e.g., every 10 years) to determine if any policies, rules, or regulations have changed, which may impact the eligibility of agroforestry practices to qualify for preferential assessment. If resources are available, we recommend contacting local or State tax experts in each State to review information and findings associated with their State's programs. Additionally, we suggest future research investigate the compatibility of agroforestry practices with PPTPs for open space lands. Open space lands were outside the scope of our analysis,

but when reviewing the land use classifications of interest and their defining characteristics in reference material, we discovered multiple instances where agroforestry practices may qualify as open space land. Likewise, there is an opportunity for future research to evaluate PPTPs that preferentially assess land enrolled in conservation programs to determine if agroforestry practices supported by programs such as the Natural Resources Conservation Service's Environmental Quality Incentive Program may be eligible land uses. Finally, incorporating an experimental design featuring PPTP administrators and county assessors would provide robustness of our findings. The experiment would present assessors and PPTP administrators with multiple agroforestry practice scenarios, and the assessors and administrators would then be asked if the scenarios would qualify for preferential assessment in their State.

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APPENDIX A

Table A.1—Geographic scope of this study and the pilot-scale study by Chizmar et al. (2022)

States evaluated in this study	Region
Alabama (AL)	South
Alaska (AK)	Pacific Coast
Arizona (AZ)	Rocky Mountain
Arkansas (AR)	South
California (CA)	Pacific Coast
Colorado (CO)	Rocky Mountain
Connecticut (CT)	North
Delaware (DE)	North
Florida (FL)	South
Georgia (GA)	South
Hawaii (HI)	Pacific Coast
Idaho (ID)	Rocky Mountain
Illinois (IL)	North
Indiana (IN)	North
Iowa (IA)	North
Kansas (KS)	Rocky Mountain
Kentucky (KY)	South
Louisiana (LA)	South
Maine (ME)	North
Maryland (MD)	North
Massachusetts (MA)	North
Michigan (MI)	North
Minnesota (MN)	North
Mississippi (MS)	South
Missouri (MO)	North
Montana (MT)	Rocky Mountain
Nevada (NV)	Rocky Mountain
New Hampshire (NH)	North
New Jersey (NJ)	North
New Mexico (NM)	Rocky Mountain
North Dakota (ND)	Rocky Mountain
Ohio (OH)	North
Oklahoma (OK)	South
Pennsylvania (PA)	North
Rhode Island (RI)	North
South Carolina (SC)	South
South Dakota (SD)	Rocky Mountain
Tennessee (TN)	South
Texas (TX)	South
Utah (UT)	Rocky Mountain
Vermont (VT)	North
Virginia (VA)	South
Washington (WA)	Pacific Coast
West Virginia (WV)	North
Wyoming (WY)	Rocky Mountain

States evaluated in Chizmar et al. (2022)	Region
Nebraska (NE)	Rocky Mountain
New York (NY)	North
North Carolina (NC)	South
Oregon (OR)	Pacific Coast
Wisconsin (WI)	North

APPENDIX B

Table B.1—Number of subprograms per program by State and land use classification

State	Program	A	F	H	Subprogram total
Alabama	AL General Property Tax Program	1	1	1	3
Alaska	AK General Property Tax Program	1	1	—	2
Arizona	AZ General Property Tax Program	1	1	1	3
Arkansas	AR General Property Tax Program	1	1	—	2
California	CA Timberland Productivity Act	—	1	—	1
California	CA Williamson Act Program	1	—	—	1
Colorado	CO General Property Tax Program (Agricultural Lands)	1	1	—	2
Connecticut	CT General Property Tax Program	1	1	—	2
Delaware	DE Agricultural Lands Preservation Act	1	1	—	2
Delaware	DE Commercial Forest Plantation	—	1	—	1
Delaware	DE General Property Tax Program	1	1	1	3
Florida	FL Greenbelt Program	1	1	1	3
Georgia	GA Forest Land Protect Act	—	1	—	1
Georgia	GA Current Use Tax (Agricultural Preferential Assessment)	1	1	1	3
Georgia	GA Current Use Tax (Conservation Use)	1	1	1	3
Hawaii	Hawaii County, Agricultural Property Tax Reduction	1	1	—	2
Hawaii	Hawaii County, Native Forest	—	1	—	1
Hawaii	Honolulu City and County Agricultural Property Tax Reduction	1	1	—	2
Hawaii	Kauai County, Agricultural Property Tax Reduction	1	1	—	2
Hawaii	Kauai County, Tree Farm Development Exemption	—	1	—	1

State	Program	A	F	H	Subprogram total
Hawaii	Maui County, Agricultural Property Tax Reduction	1	—	—	1
Idaho	ID Forest Tax Law	—	1	—	1
Idaho	ID General Property Tax	1	—	—	1
Illinois	IL Conservation Stewardship Law	—	1	—	1
Illinois	IL General Property Tax Program	1	1	1	3
Illinois	IL Wooded Acreage Assessment Transition Law	—	1	—	1
Indiana	IN Classified Forest and Wildlands Program	—	1	—	1
Indiana	IN General Property Tax Program	1	—	—	1
Iowa	IA Forest Reserve Law	—	1	1	2
Iowa	IA General Property Tax Program	1	—	—	1
Kansas	KS General Property Tax Program	1	1	1	3
Kentucky	KY General Property Tax Program	1	1	1	3
Louisiana	LA General Property Tax Program	1	1	1	3
Maine	ME Farmland Program	1	1	1	3
Maine	ME Tree Growth Tax Law Program	—	1	—	1
Maryland	MD Agriculture Use Assessment	1	1	—	2
Maryland	MD Forest Conservation Management Agreement	—	1	—	1
Massachusetts	MA Chapter 61A-Agriculture	1	1	1	3
Massachusetts	MA Forest Conservation and Management Program	—	1	—	1
Michigan	MI Commercial Forest Tax Program	—	1	—	1
Michigan	MI Qualified Agricultural Property Exemption	1	—	1	2
Michigan	MI Qualified Forest Property Tax Program	—	1	—	1
Minnesota	MN Agricultural Property Tax Law	1	—	1	2
Minnesota	MN General Property Tax (Class 2 property)	1	1	—	2
Mississippi	MS General Property Tax Program	1	1	1	3

State	Program	A	F	H	Subprogram total
Missouri	MO General Property Tax Program	1	1	1	3
Montana	MT Forest Lands Tax	—	1	—	1
Montana	MT General Property Tax Program	1	—	1	2
Nebraska	NE General Property Tax Program	1	1	1	3
Nevada	NV General Property Tax Program	1	1	1	3
New Hampshire	NH General Property Tax Program	1	1	1	3
New Jersey	NJ Farmland Assessment Program	1	1	1	3
New Mexico	NM General Property Tax Program	1	1	1	3
New York	NY Agricultural Assessment Program	1	—	—	1
New York	NY Forestland Program	—	1	—	1
North Carolina	NC Present Use Value Program	1	1	1	3
North Dakota	ND Forest Stewardship Property Tax Program	—	1	—	1
North Dakota	ND General Property Tax Program	1	—	1	2
Ohio	OH Current Agricultural Use Value (CAUV) Program	1	—	1	2
Ohio	OH Current Agricultural Use Value (CAUV) Program (Woodland)	—	1	—	1
Ohio	OH Forest Tax Law	—	1	—	1
Oklahoma	OK General Property Tax Program	1	1	—	2
Oregon	OR Exclusive Farm Use Zone	1	—	—	1
Oregon	OR Forestland Program	—	1	—	1
Oregon	OR Non-Exclusive Farm Use Zone	1	—	—	1
Oregon	OR Small Tract Forestland Program	—	1	—	1
Pennsylvania	PA Farm and Forest Land Assessment Program (Clean and Green Program)	1	1	1	3
Rhode Island	RI Farm, Forest and Open Space Property Tax Program	1	1	1	3

State	Program	A	F	H	Subprogram total
Rhode Island	RI General Property Tax Program	—	1	—	1
South Carolina	SC General Property Tax Program	1	1	1	3
South Dakota	SD General Property Tax Program	1	1	1	3
Tennessee	TN Greenbelt Law	1	1	1	3
Texas	TX General Property Tax Program	2	1	1	4
Utah	UT Farmland Assessment Act	1	1	1	3
Vermont	VT Agricultural and Managed Forest Use Value Program	1	1	1	3
Virginia	VA General Property Tax Program	1	1	1	3
Washington	WA General Property Tax Program	1	2	1	4
West Virginia	WV Farm Use Valuation	1	1	1	3
West Virginia	WV Managed Timberland, Timberland, and Farm Wood Lot	—	1	—	1
Wisconsin	WI Managed Forest Law Program	—	1	—	1
Wisconsin	WI Use Value Assessment Program	1	—	—	1
Wyoming	WY General Property Tax Program	1	1	1	3
Total		**58**	**69**	**38**	**165**

A = agriculture; F = forest land; H = horticulture.

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Agroforestry practitioners face numerous barriers, including narrowly focused agricultural and forest land support programs that are targeted toward conventional crop and timber production. Preferential property tax programs (PPTPs) are one of the critical support programs that offer economic relief for landowners of enrolled lands. However, eligibility criteria for these programs may prevent inclusion of agroforestry lands, and thus, disincentivize the diversification of working lands. This study reviewed State statutes, administrative rules, tax guides and manuals, and other supporting publications to determine the compatibility of PPTPs for agricultural, forest, and horticultural lands with the characteristics of agroforestry systems. Results suggest that at least one of the five agroforestry practices of interest may be eligible for preferential assessment in each of the 50 States. PPTPs for agricultural lands may welcome a mixed agriculture-forestry interface more than PPTPs for forest lands. Silvopasture was found to be the most common practice potentially allowed under the preferential tax classifications. Productivity and land cover requirements and prohibited activities were identified as the primary limiting factors restricting eligibility of agroforestry practices. The findings from this study may be used to inform discussions related to landowner decision making and natural resource policy.

Keywords—tax incentive; silvopasture; alley cropping; windbreak; riparian forest buffer; forest farming; valuation and appraisals