HONEY BEE HEALTH COALITION

January 21, 2016

TO: Mike Schmidt, USDA Farm Services Agency; Katina Hansen, USDA Farm Services Agency; Tawny Mata, USDA Office of the Secretary
FROM: Honey Bee Health Coalition
SUBJECT: **Honey Bee Health Coalition Recommendations for CP42 'Bee'**

The Honey Bee Health Coalition (the Coalition) appreciates the opportunity to provide the following recommendations to the U.S. Department of Agriculture (USDA) Farm Service Agency (FSA) regarding the development of a conservation practice for honey bee forage as a complement to the Conservation Reserve Program (CRP) Pollinator Habitat practice (CP-42), or a CP-42 'Bee.'

The Honey Bee Health Coalition is a diverse public-private partnership that brings together beekeepers, growers, researchers, government agencies, agribusinesses, conservation groups, manufacturers and brands, and other key partners to improve the health of honey bees and other pollinators in the context of productive agricultural systems and thriving ecosystems. (A full list of Coalition members is available at www.honeybeehealthcoalition.org.) Accordingly, our consensus recommendations incorporate a wide variety of interests at the intersection of agriculture, honey bee health, and conservation. Our recommendations for CP-42 'Bee' are intended to increase biodiversity and restore habitat that enhances the nutritional value and affordability of honey bee and pollinator forage in agricultural landscapes.

Our recommendations are directed toward the development of national guidance for CP-42 'Bee' for honey bees, with specific reference to current language in two FSA offerings – Practice CP-42, Pollinator Habitat (FSA Notice CRP-687; https://www.fsa.usda.gov/Internet/FSA_Notice/crp_687.pdf) and the CRP Honey Bee Initiative (FSA Notice CRP-775; https://www.fsa.usda.gov/Internet/FSA_Notice/crp_775.pdf). The recommendations below correspond to specific content currently found in the notices for these program offerings. Although these recommendations are focused on the development of CP-42 'Bee,' we believe they would benefit other pollinators as well and therefore we also encourage FSA to consider their incorporation within the existing programs (CP-42 and CRP-775).

In addition to our recommendations on the specific language of the existing notices, we offer the following generalized recommendations to enhance the positive impacts of practices and initiatives designed to promote honey bee forage and pollinator habitat:

- Our recommendations below focus on national and regional guidance (including regional seed lists). The effectiveness of practices and programs will ultimately rely on their implementation at the state and local level, and we've thus also flagged places where the national guidance is conceptually good, yet there are concerns that its implementation through regional, state, and local guidance may limit the benefits for honey bees and other pollinators. The Coalition recognizes that success will depend on flexibility within the national and regional guidance to

implement geographically-appropriate practices at state and local scales, and to do so through established mechanisms such as the Natural Resource Conservation Service (NRCS) State Technical Committees (STC). At the same time, success will also depend on prioritization of pollinator forage and habitat at the state and local scales, based on a common objective to improve pollinator health. This prioritization can be encouraged – and overarching concerns about regional and state guidance can also be discussed – through broader dialogue about the importance of pollinator health and the benefits of bee forage for pollinators and other interests. In this way, national leadership and dialogue can appropriately encourage and inform state- and local-level implementation.

- Evaluation and feedback on the success of forage and habitat plantings is needed to better understand and implement appropriate seed mixes, seeding rates, establishment and management practices. Structured, on-the-ground trials that involve the expertise of a diversity of stakeholders will promote shared learning and continuous improvement. Coalition members are eager to partner with USDA, the U.S. Geological Survey (USGS), and other agencies in demonstration projects that will enhance our collective knowledge and ability to provide the best possible pollinator forage.

Once again, we thank you for the opportunity to submit these recommendations. We welcome the opportunity to discuss them, and for continued and ongoing private-public dialogue and partnership on these topics. Please feel free to contact the Coalition's facilitator regarding these recommendations:

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Honey Bee Health Coalition Recommendations for CP-42 'Bee,' with reference to Practice CP-42, Pollinator Habitat (FSA Notice CRP-687) and CRP Honey Bee Initiative (FSA Notice CRP-775)

1. **Minimum number of species in a seed mix**
   - **A. Referenced Language**: CP-42, Paragraph 2-A: Seed Mixes; CP42, Exhibit 1, Paragraph F: Practice Requirements; CRP-775, Paragraph 2-A: Seed Mixes
     - **Current CP42 requirement:** *'seeding mixes shall contain a minimum of 9 species of pollinator-friendly flowering plants, including wildflowers, legumes, and/or shrubs'*
     - **Current CRP-775 requirement:** *'a minimum of 3 species, and up to a maximum of 8 species, of honey bee-friendly grasses and flowering plants, including wildflowers and legumes, be established'*
   - **B. Coalition Recommendation for CP42 'Bee' Requirement**: Increase minimum number of species of pollinator-friendly flowering plants to 15, *e.g.*, '*Seeding mixes shall contain a minimum of 15 species pollinator-friendly flowering plants, including wildflowers, legumes, and/or shrubs*'
   - **C. Rationale:** Increasing the minimum required number of forbs in a CP-42 seeding mixture to 15 pollinator-friendly flowering plants or more, and similarly increasing the minimum requirements for CRP-775, would have significant impacts in increasing the effectiveness of the programs for ensuring the establishment of high quality honey bee and pollinator forage. Too often, the minimum number listed in seeding specifications becomes the default 'standard' that is used when designing seeding mixtures. A December 2015 article[1] in the Ecological Restoration Journal concluded that increasing the number of species in a seeding mixture (twenty or more species) tended to produce results (establishment) that maintained the basics of the original seeding mixture; whereas, when a reduced number of species were used in the original seeding mixture, it tended to become dominated by invasive grasses over time. Domination by grasses results in decreased diversity, reduced wildlife value and out-competition of the forbs that provide the pollinator value. Similarly, early results of an ongoing, USDA/FSA-sponsored review of the CP-42 practice have identified that seeding mixtures established with a higher diversity of forb species benefited more pollinator species than did seeding mixtures established with the current minimum number of forb species. The Coalition recognizes that inclusion of 15 or more pollinator-friendly forb species in seed mixes may be more challenging in some regions where fewer species are available based on current seeding specifications as well as climate. On the other hand, inclusion of a minimum of 15 species can be easily accomplished in most areas of the country where this number can be far exceeded based on current specifications and/or number of species adapted to a geographic area. For example, the Field Office Technical Guides for states such Illinois, Iowa, Missouri and Wisconsin include more than a hundred species each on their approved forb lists. Allowance and use of a broader range of species in seed mixes *combined with* an increase in the minimum required number of species will significantly increase the diversity and nutritional value of seed mixes for pollinators. Regarding the reference to a maximum number of species in CRP-775, the

[1] Norland J, Larson T, Dixon C, Askerooth K. 2015. Outcomes of Past Grassland Reconstructions in Eastern North Dakota and Northwestern Minnesota: Analysis of Practices. Ecological Restoration Vol. 33:4: 408-418.

Coalition recommends that the maximum number of species in a mixture should not be restricted through seed specifications. Rather, the appropriate number of species (above the minimum of 15 or more) should be determined on a case-by-case basis based on considerations of the benefits for pollinator habitat and bee forage as well as the costs associated with the species and mixtures in question.

2. **Seeds per square foot**
   - A. **Referenced Language:** CP-42, Paragraph 2-A: Seed Mixes; CP-42, Exhibit 1, Paragraph F: Practice Requirements; and CRP-775, Paragraph 2-A: Seed Mixes
     - **Current CP-42 and CRP-775 requirement:** *'where allowed by the NRCS Field Office Technical Guide (FOTG), total seed mixes, including grass seeds, must be 15-30 pure live seeds per square foot.'*
   - B. **Coalition Recommendation for CP-42 'Bee' Requirement:** Allow the use of pollinator seeding mixtures designed with greater than 30 seeds per square foot, e.g., *'The number of pure live seeds per square foot for total seed mixes shall not be limited.'*
   - C. **Rationale:** The current specifications at the national level do not allow the use of seeding mixtures with greater than 30 seeds per square foot. Allowing mixtures designed with greater than 30 seeds per square foot will help resource professionals to better consider and address the challenges with early successional weeds that specific states are concerned about because higher seeding rates can produce early establishment that is better able to compete with weeds. This is a key issue that currently limits the success of CP-42. In terms of best practices, appropriate pollinator forage seeding rates should be determined through further discussion with NRCS and technical experts. The rates will depend on geography, the seeds used, and management practices.

3. **Percentage of introduced species**
   - A. **Referenced Language:** CP-42, Paragraph 2-A: Seed Mixes and CP-42, Exhibit 1, Paragraph F: Practice Requirements
     - **Current CP-42 requirement**: *'Each introduced species is encouraged to make up no more than 10 percent of the pure live seed mixture with a total of introduced flowering plants encouraged to not exceed 20 percent of the pure live seed mixture.'*
   - B. **Coalition Recommendation for CP-42 'Bee' Requirement:** Remove the limit on the percentage of **introduced flowering plants** allowed in a seed mixture, *e.g.*, *'Each introduced species is encouraged to make up no more than 10 percent of the pure live seed mixture; the total percentage of introduced flowering plants is not limited.'*
   - C. **Rationale:** Pollinator seeding mixtures with a high percentage of introduced legumes can be used to make seed mixtures that are cost effective, able to compete with early successional weeds, established quickly and offer highly nutritious forage for many pollinator species. The appropriate percentage of introduced species in a mixture will depend on the specific situation, as determined by geography as well as landowner objectives. The goal is to have a sustainable planting for the long term, but it is difficult to know what this means in terms of the percentage of introduced species without understanding the specifics of the site. We thus recommend that the national guidance should be kept general on this topic, as any percentage cap may otherwise be arbitrary.

4. **Percentage of grasses**
   - A. **Referenced Language:** CP-42, Paragraph 2-A: Seed Mixes and CRP-775, Paragraph 2-A: Seed Mixes

- **Current CP-42 requirement:** '*seeding mixes shall include no more than 25 percent grasses based on pure live seeds per square foot. **Note**: Grass is **not** required in CP42.'*
- **Current CRP-775 requirement:** *'Seeding mixes shall include no more than 25 percent grasses based on pure live seeds per square foot.'*

B. **Coalition Recommendation for CP-42 'Bee' Requirement:** Maintain this guidance for national and regional guidance, and include the note like that found in CP-42 that *'Grass is **not** required in CP-42 'Bee.'* At the regional (*e.g.*, CRP-775) and state level, 1) emphasize that pollinator seeding mixtures should contain no more than 25% of the entire mixture in grass based on seeds per square foot; 2) direct regional and state program representatives to design pollinator seed mixtures that are better able to compete with early successional weed competition; and, 3) encourage that pollinator seeding mixtures should have the option of designing mixtures that are entirely comprised of forbs.

C. **Rationale:** Grass is not beneficial for pollinator forage, and where grass is used to address weed control concerns, alternative solutions can be implemented (*e.g.*, establishment and management practices, appropriate seeding rates, and appropriate design of mixtures of forb species can all be effective tools for weed control). While the national CP-42 (CRP-687) guidance within CP-42 and the regional guidance for CRP-775 regarding limiting the percentage of grass is appropriate, state seeding specifications are able to override this and frequently do. As an example, North Dakota requires that 65% of the mixture be grass in a pollinator seeding, and Minnesota requires 3 Pure Live Seed (PLS) pounds of grass in pollinator seedings. Adding the statement that 'grass is not required' to the regional guidance (as is already included in national guidance for CP-42) will underscore the points made above regarding of the value of higher percentages of forbs for honey bee forage and pollinator habitat

5. Establishment

A. **Referenced Language:** CP-42 Paragraph 2-C: Establishment and CRP-775 Paragraph 2-B: Establishment

- **Current CP-42 requirement**: *'To address concerns about weed competition for establishing Pollinator Habitat, participants may use cover crops, herbicides, and other means, as outlined in the approved conservation plan and according to 2-CRP, paragraph 426, before planting. Where weed competition is a concern, a full season of site preparation (for example, 2 or 3 applications of broad spectrum herbicide) before fall planting is recommended.'*
- **Current CRP-775 requirement:** *'CRP participants may use cover crops, herbicides, and other means, as outlined in the approved conservation plan and according to 2-CRP, paragraph 426, to establish honey bee habitat. Authority provided includes consideration of potential herbicide applications in the fall, spring, and following fall to control existing grass competition, and no-till planting of site appropriate, perennial grass and forb seed mixes to benefit honey bees and other pollinators, and residue removal by bailing, burning, or grazing.'*

B. **Coalition Recommendation for CP42 'Bee' Requirement:** Encourage states to allow for a broader range of establishment options including: dormant seedings in the fall; establishment with a no-till drill; and discouraging the use of tillage prior to seeding in sites with known weed competition history, *e.g.*, *'Practices effective for establishment of pollinator seed mixes may include dormant seedings in the fall, establishment with a no-till drill, and discouraging tillage prior to seeding.'*

C. **Rationale:** While the national guidance includes a variety of establishment options, state seeding specifications and recommendations unduly restrict establishment practices that produce positive pollinator habitat results. National guidance that encourages better establishment practices can have positive impacts for honey bees. Specifically:
    - Seeding specifications to establish high diversity pollinator habitat should allow the use of dormant seedings. Highly diverse seeding mixtures typically contain species that require stratification in order to break seed dormancy for germination. Allowing establishment using fall, dormant-seeding techniques has proven to be highly successful for pollinator habitat seedings and increased germination rates for species with dormancy.
    - Seeding mixtures should be established using no-till grass drills with depth control or broadcast seeding methods. High diversity seeding mixtures require more care and attention to ensure the proper seed depth is maintained. High diversity seeding mixtures that are planted at a depth greater than ¼inch often result in unsuccessful establishment.
    - Strongly discourage field tillage prior to planting pollinator habitat in any sites known to have a significant weed competition history. Tillage ahead of planting significantly increases weed competition that jeopardizes the success the pollinator habitat planting.

6. **Mid-contract Management**
    A. **Referenced Language:** Paragraph 2-D: Mid-contract Management; CP42, Exhibit 1, Paragraph K: Management Activity; and CRP-775 Paragraph 2-C: Mid-Contract Management
        - **Current CP-42 and CRP-775 requirement:** '*Management activities may be authorized during the blooming periods, but outside the primary nesting season, if the management activity promotes plant diversity and enhances pollinator habitat'*
    B. **Coalition Recommendation for CP42 'Bee' Requirement:** Include a note such as, *'States are encouraged to increase available CRP Mid-Contract Management activities available on pollinator habitat; examples of management options that help establish and maintain high quality pollinator habitat may include: Prescribed Fire, Light Disking, Managed Grazing, Managed Haying, Herbicide Application, Inter-seeding and a combination of these techniques.'*
    C. **Rationale:** While the national guidance is generally inclusive of a variety of mid-contract management practices, state specifications tend to unduly limit the available practices that promote the establishment of pollinator habitat. National encouragement of practices that successfully produce pollinator forage and habitat results can have positive impacts for honey bees and other pollinators.

    D. *** Coalition recommendation to supplement CP42 'Bee':** Provide a Fact Sheet for FSA, NRCS and landowners on timing and procedures for weed control techniques.
        - **Rationale:** Local USDA service center offices can get confusing messages about the time to plant, mow and complete management activities. A Fact Sheet for the FSA, NRCS and landowners on timing and procedures for weed control techniques, overseeding or interseeding, herbicide options, *etc.* would be helpful to improve program results and benefits. We recognize that such a fact sheet would not be included directly in national or regional guidance but see it as an important complement to this guidance.

E. **Coalition recommendation to supplement CP42 'Bee':** Promote effective models to provide training and support for landowners to use prescribed fire.
    - **Rationale:** The use of prescribed fire as an establishment, enhancement and mid-contract management practice is perhaps the most cost-effective management tool available. In order to enhance the use of safe and effective prescribed fire, the Coalition encourages USDA to promote the effective models that provide training and support for landowners to use prescribed fire. Examples of highly successful models that provide landowner training, access to equipment and the man-power to conduct burns are available for review and consideration through Coalition members.

F. **General recommendation on mid-contract management**: there is interest among Coalition members in seeing mid-contract management authorities described in CRP-775 expanded to include other states.

7. **Haying and Grazing**
    A. **Referenced Language:** Paragraph 2-E: Managed Harvesting and Routine Grazing and CP-42, Exhibit 1, Paragraph F: Practice Requirements
        - **Current CP42 requirement:** *'The seeded area of CP42 shall not be harvested or grazed by domestic livestock for the life of CRP-1.'*
    B. **Coalition Recommendation for CP42 'Bee' Requirement:** Allow managed haying and grazing, *e.g.*, *'Managed haying and grazing is allowed in the seeded area of CP42 'Bee.''*
    C. **Rationale:** Currently, managed haying and grazing is not an option in CP-42, but it is often an option in the State Acres for Wildlife Enhancement (SAFE) (CP38; https://www.fsa.usda.gov/Internet/FSA_File/safe08.pdf), Habitat Buffers for Upland Birds Program (CP33; http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb111972) and other NRCS Conservation Reserve Program options. This creates an incentive for landowners to select for enrollment in Conservation Programs options other than CP-42. When appropriately used, managed haying and grazing can be an important pollinator habitat management tool. Allowing the use of managed haying and grazing outside of the primary nesting season for birds can provide better pollinator habitat management tools and increase the attractiveness of the program to landowners. The Coalition recognizes that managed grazing during the primary nesting season can be applied in a manner consistent with the CRP program objectives and encouraging high diversity habitat.

    Specifically, high intensity, short-duration grazing in the early spring (before the start of the primary nesting season dates) is a highly effective management tool for maintaining high diversity and controlling the increase of grasses. Similarly, the use of patch burn-patch grazing systems can provide significant benefits for pollinators and other wildlife by promoting high diversity habitat. This practice can be used to create some open areas in the stand and benefit species such as milkweeds that require some form of disturbance to extend and enhance their presence in a pollinator forage planting.

    See the following for an example of conservation practices that currently allow managed haying and grazing. The timing and duration of grazing allowed in various examples may differ: the intent here is simply to demonstrate other conservation practices that allow managed grazing.

- Michigan SAFE CP38E (Pollinator Habitat Planting) (http://www.nrcs.usda.gov/wps/PA_NRCSConsumption/download?cid=stelprdb1257988&ext=pdf): "Maintenance activities are allowed only on a spot basis and only if necessary to maintain stand health, maintain stand diversity, or control pests that will damage the cover or adjacent lands. Burning must be in accordance with a prescribed burn plan... Spring disking is allowed if completed before May 1st. MOWING is only authorized between Aug 1st and Aug 20th to protect ground-nesting wildlife and to allow re-growth for winter cover. Other maintenance activities are only allowed between August 1 –May 1st (*i.e.* - outside of the primary nesting and brood-rearing season)."

8. **Cost of Seed**
   - A. **Referenced Language**: CRP-775 Paragraph 2-A: Seed Mixes
     - **Current CRP-775 requirement:** *'Seed mixes selected should be based…moderate cost…and landowner objectives.'*
     - **Current CRP-775 requirement:** *'Producer out-of-pocket costs to implement honey bee habitat enhancement are estimated to exceed $200 per acre on average.'*
   - B. **Coalition Recommendation for CP42 'Bee' Requirement:**
     - Include a note such as, *'**Note**: cost-effective options are important for program participation; a range of options is encouraged to meet varying producer objectives– for example, options may include higher-cost native and perennial mixes as well as more moderate and low cost mixes with higher proportions of annual and/or introduced species.'*
     - Address other recommendations for seeding specifications in order to lower the expected producer out-of-pocket costs below $200 per acre.
   - C. **Rationale:**
     - The cost of mixes has significant impact on a producer's decision to enroll in the program, and high-cost seed mixes create a barrier to participation and success. Cost-effectiveness is dependent on a variety of other seed specification factors including grass requirements, native species requirements, and sourcing preferences. It is important to address these other issues in order to produce affordable mixtures. By emphasizing cost-effectiveness and offering a range of options, producers have a choice as to what pollinator mixes fit within their budget and other objectives.
     - High out-of-pocket costs create a disincentive for enrollment. Costs per acre can be significantly lower than $200/acre if seeding specifications are adjusted. For example, offering a broader list of eligible native and introduced species, adjusting seeding rates, and minimizing or eliminating the percentage of grass included can all help drive down the cost of seed mixes. These issues must be addressed in order to enable use of more cost-effective mixtures that provide greater incentive for producers to participate in the program. Addressing other seeding specification concerns will enable producers to have a range of choices and price points to meet their objectives.
     - Because seed costs are impacted by all of the variables mentioned above, including available species and specifications on a state-by-state basis, determining expected or target costs at the national level is challenging. However, experience among

Coalition members indicates that costs per acre can be significantly lower or higher than $200.

- For example, Minnesota NRCS provides three seed mix options. An initial estimate of the costs of these options were developed using the specifications outlined in the Minnesota job sheets for these mixes. These sample costs, although specific to the Minnesota mixes, illustrate the range of potential costs and the importance of allowing flexibility in available species and specifications in order to offer a broader range of options and encourage adoption of the practice:
    1. Native Habitat Development Mixes (327 Jobsheet 16)[2] - Native plant lists includes forage for honey bees. Results in permanent, native planting.
        - Estimated cost: $400.00-600.00 per acre (sourced from Applewood Seed Company)
    2. Honey Bee Habitat w/ Introduced Grasses & Legumes, permanent planting (327 Jobsheet 8)[3]
        - Estimated cost: $33.00-45.00 per acre (sourced from seed suppliers of grasses & legumes in SD, WI)
    3. HBP Cover Crop option (EQIP program)[4] - small grain-legume-brassica mix for a single growing season
        - Estimated cost: $36.00-40.00 per acre (sourced from seed suppliers of cover crops in SD, WI)
- As another example, below are descriptions and costs of seed mixes used by the Honey Bee and Monarch Butterfly Partnership (http://projectapism.org/?page_id=1410) in its program in the Dakotas:
    1. Honey Bee Mixture with introduced legumes: $43.30 per acre.
    2. Monarch Butterfly Mixture – high diversity and comprised mostly of native forbs: $139.22/acre.

9. <u>Seed Sourcing and Availability</u>

A. Referenced Language: CRP-775 Paragraph 2-A: Seed Mixes

- **Current CRP-775 Requirement: '***'Seed mixes selected should be based on commercial availability…'*

B. Coalition Recommendation for CP42 'Bee' Requirement: Include a note such as '**Note**: '*States and local offices are encouraged to minimize or eliminate geographic restrictions on seed sourcing for forage on agricultural lands to enable increased access to cost-effective and highly diverse seed mixtures.'*

C. Rationale: Although geographic restrictions on seed sourcing are not always codified in requirements or specifications, many states in the Midwest have mileage restrictions in their seed specifications or restrictions based on local ecotype sources (for example, Nebraska, Iowa and Missouri). Where the restrictions are not codified in specifications, they are frequently encouraged and incorporated into seed mix recommendations. While these sourcing restrictions are important for restoration projects, they can be too restrictive for

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[2] NRCS-Minnesota, 2014: Native Habitat Development for Pollinators (327) (Biology Jobsheet #16) Biology Jobsheet #16. (Note: *the jobsheet for this mix uses an outdated lbs/acre recommendation, which for the purposes of calculating this cost has been replaced with an optimal planting rate of 40 pure live seeds per sq ft)*

[3] NRCS-Minnesota, 2014: Establishment of Introduced Grasses and Legumes (327) Biology Jobsheet #8

[4] Environmental Quality Incentives Program, 2014 EQIP Signup, Minnesota Supplement for: Practice Standard 340 – Cover Crop

fulfilling pollinator habitat objectives on agricultural lands. Encouraging use of seed sourced within a small radius from a planting site often results in seed mixes that are costly and difficult to find, which in turn can restrict the ability to develop and access cost-effective, nutritious pollinator seed mixtures. Elimination of geographic preferences for local seed sourcing for forage projects on agricultural lands would enable increased access to cost-effective and highly diverse seed mixtures.

10. Approved Species List

A. Referenced Language: CRP-775, Exhibit 1: Approved Species List for Plantings Under CRP Honey Bee Initiative

- **Current CRP-775 requirement:** *Species table.*

***B.* Coalition Recommendation for CP-42 'Bee' Requirement:** Within Exhibit 1, allow a broader range of native species and introduced species adapted to a geographic area. Please see attached for list of **additional species** not currently listed in CRP-775 that would provide high or very high honey bee forage value in the five state region of the CRP Honey Bee Initiative. Also included in the attached list are honey bee forage species suggestions for other regions. Our recommendations for high value honey bee forage species are based on a consensus of Coalition stakeholder input from conservation, beekeeping, academia, government, and industry sectors. *Please note that our recommendations focus on species with high forage value for honey bees that are not already included in CRP-775; if desired, Coalition members can also provide recommendations on additional species not listed in CRP-775 that are not of high value to honey bees but are of high value for other pollinators.*

C. Rationale: Allowing a broader range of forb species that can be considered when creating conservation program seeding mixtures will improve opportunities to create geographically-appropriate, cost-effective seed mixes that enhance pollinator nutrition and also address the other considerations for program success, *i.e.*, commercial availability of seeds, reasonable ease of establishment, nutritional and habitat value for honey bees relative to establishment costs, site conditions, and landowner objectives. Limiting the eligible plant species often creates stresses on seed vendors to have adequate and cost-effective seed supplies, discourages seed vendors from acquiring additional non-USDA approved species in their inventory, and decreases the pollinator benefits of the conservation program seeding mixture. Our recommendations include additional geographically-appropriate native and introduced species. Coalition members have experience developing geographically-appropriate mixtures using combinations of native and introduced species that increase nutritional value for honey bees and other pollinators while properly managing and mitigating concerns related to aggressiveness of introduced species.

D. Additional Coalition recommendations for CP-42 'Bee' related to the species table:

- Include bloom periods of eligible plant species.
- Improve the bloom period dates currently being used by USDA with the objective of having blooms from April through October. Currently, because Bloom Period 1 runs from April to June 15, this enables Bloom Period 1 mixtures that include blooms only in June, and not in April and May. Allowing plant species that do not begin to flower until June to be listed as a Bloom Period 1 species does not provide critical pollinator forage needs during the early parts of the year. Due to pollinator foraging needs, bloom periods should be designed to require blooms in April and May. Bloom Period 1 should more appropriately be April to May 31, Bloom Period 2 is June 1 to July 31, and Bloom Period 3 is August 1 to October 31.
- List whether the species are annuals or perennials.

E. **Additional Coalition recommendations for CP-42 'Bee' related to the use of the species table at the regional, state and local level:**
   - In addition to needing more species choices, additional sources from which to purchase them (at an affordable price) are needed; therefore, availability is an issue.
   - Include a list of substitute plant species if the recommended ones are not available.
   - Offer several different price points for seed mix options (see comments on CRP-775 Paragraph 2-A, above).

11. Milkweed

A. **Referenced Language:** CRP-775, Exhibit 1: Approved Species List for Plantings Under CRP Honey Bee Initiative
   - **Current CRP-775 language:** 'Asclepias *species (milkweeds) have the added benefits of supporting habitat for Monarch butterflies and using milkweeds should be encouraged in appropriate plantings. However, many species of milkweed are toxic to livestock (sheep, cattle, and occasionally horses).'*

B. **Coalition Recommendation for CP-42 'Bee' Requirement:** Include a note that strongly promotes the use of milkweed species in plantings for the benefit of both honey bees and monarch butterflies and emphasize that concerns, including livestock toxicity, can be addressed through appropriate management; remove language that discourages milkweed usage.

C. **Rationale:** Milkweeds are a common, inexpensive and highly nutritious plant to add to seeding mixtures that benefit both honey bees, native bees and monarch butterflies. In many cases, resistance to planting milkweed is based on historical weed control challenges that can be largely addressed through current available weed control techniques. We need to work to promote this species in mixtures and move beyond cultural resistance. Promoting the use of milkweed species in CP-42 'Bee' will complement the USDA's recently launched Monarch Butterfly Habitat Development Project, which also encourages milkweed plantings.

12. Sweetclover

A. **Referenced Language:** CRP-775, Exhibit 1: Approved Species List for Plantings Under CRP Honey Bee Initiative
   - **Current CRP-775 language: '***Note: NRCS recognizes that sweetclover (Melilotus officinalis) and birdsfoot trefoil (Lotus corniculatus) are important species for honey bee forage. However, because of concerns about invasiveness for both species and potential poisoning of livestock and wildlife (coumarin poisoning) with improper management of sweetclover, NRCS limits the recommendation of these species in its conservation programs. State specialists have the option of adding these species to planting recommendations, if desired.'*

B. **Coalition Recommendation for CP42 'Bee' Requirement:** Include sweetclover as an approved species in geographically-appropriate contexts where concerns regarding invasiveness as well as livestock management can be cost-effectively addressed through existing, appropriate management techniques. Rather than discouraging the use of sweetclover as in the current note found in CRP-775, replace it with a note that recognizes its value to pollinators and soil and discusses the importance of geography and management in determining whether to include it in a seed mix.

C. **Rationale:** Yellow sweetclover and white sweetclover (*Melilotus officinalis* and *Melilotus albus*) are frequently excluded from seeding mixtures. However, honey bee forage experts at the October 2014 USDA Honey Bee Forage Summit frequently cited sweetclover's value – when appropriately used – as a cost-effective, long-blooming and highly nutritious forage resource for honey bees. The Summit Report of the Forage Working Group noted that sweet clover *'has historically supported honey bee health in many areas of the U.S, and according to beekeepers is critically needed by bees for both nutrition and honey production.'* In appropriate geographies (*e.g.*, areas with less than 38 inches of annual precipitation) and when used in the proper balance of seeds per square foot, sweet clover can be effectively used and managed to mitigate concerns regarding invasiveness. Similarly, livestock poisoning is a concern but can also be addressed through existing, cost-effective, appropriate management techniques. Honey bees and livestock are both important, and appropriate management of sweet clover in geographically appropriate areas can support the health of both livestock and honey bees. Coalition members have experience in incorporating sweetclover into pollinator forage mixes with proper seeding rates and management to address concerns related to both invasiveness and livestock poisoning.

HONEY BEE HEALTH COALITION

Honey Bee Health Coalition Recommendations
Additional Species not listed in CRP-775 That Have Value to Honey Bees

Species Name	Common Name	Native or Introduced?	Recommended for what States/Regions?*	Bloom Period (early, mid, late season)	Annual, Biennial or Perennial	Notes on aggressiveness and management strategies	Honey Bee Value	General Pollinator Value	Wetland Status
Asciepias arenaria	Sand Milkweed	Native	Great Plains	Mid	P		Very High	Very High	
Asclepias sullivantii	Smooth Milkweed	Native	Midwest; North Central	Mid	P	Rhizomatous	Very High	Very High	
Bidens aristosa	Bearded Beggarticks	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns & Piedmont; North Central; Northeast	Mid to Late	A		High	Very High	FACW
Chamaecrista nictitans	Sensitive Pea	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns. & Piedmont; Great Plains; Midwest; Northcentral; Northeast	mid	A		Very High		OBL
Cirsium altissimum	Tall Thistle	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns & Piedmont; Great Plains; Midwest; North Central	Late	B		Very High		
Conoclinium coelestinum	Mistflower	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns. & Piedmont; Great Plains; Midwest; Northcentral; Northeast	mid-late	P		Very High	Very High	FAC
Coreopsis lanceolata	Lance Leaved Coreopsis	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns & Piedmont; Great Plains; Midwest; Northcentral; Northeast	Early to Mid	P		High	High	FACU, UPL
Coreopsis tripteris	Tall Tickseed	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns. & Piedmont; Great Plains; Midwest; Northcentral; Northeast	mid-late	P	Can be aggressive in moist, disturbed sites.	Very High	Very High	FAC
Dalea villosa	Silky Prairieclover	Native	Great Plains; Midwest; North Central	Mid	P		Very High	Very High	
Desmanthus illinoensis	Illinois Bundleflower	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns & Piedmont; Great Plains, Midwest	Mid	P		High	High	FAC, FACU
Desmodium canadense	Showy Tick Trefoil	Native	Eastern Mtns. & Piedmont; Great Plains; Midwest; Northcentral; Northeast	Mid	P		Very High	Very High	FAC, FACU
Echinacea angustifolia	Blacksamson	Native	Great Plains; Midwest	Mid	P		High	Very High	
Echinacea pallida	Pale Purple Coneflower	Native	Midwest; North Central; Northeast	Mid	P		High	Very High	
Echinacea purpurea	Purple Coneflower	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns. & Piedmont; Great Plains; Midwest; Northcentral; Northeast	Mid	P		High	Very High	
Englemannia peristenia	Engelmann Daisy	Native	Arid West; Great Plains	Mid	P		High	High	
Eupatorium maculatum	Spotted Joe Pye Weed	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns. & Piedmont; Great Plains; Midwest; Northcentral; Northeast	mid-late	P		Very High	Very High	FAC,OBL
Eupatorium perfoliatum	Boneset	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns. & Piedmont; Great Plains; Midwest; Northcentral; Northeast	mid-late	P		Very High	Very High	FACW
Eutrochium fistulosum	Trumpetweed	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns. & Piedmont; Midwest; Northeast	mid-late	P		Very High	Very High	FACW,OBL
Gaillardia pulchella	Indian Blanket	Native	Arid West; Atlantic & Gulf Coastal Plain; Eastern Mtns. & Piedmont; Great Plains; Midwest; Northcentral; Northeast	Early to Mid	A		Very High	Very High	UPL, FACU
Geranium maculatum	Spotted Geranium	Native	Eastern Mtns. & Piedmont; Midwest; Northcentral; Northeast	Early	P		High	Very High	FACU

HONEY BEE HEALTH COALITION

Honey Bee Health Coalition Recommendations
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Helenium flexuosum	Purplehead Sneezeweed	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns. & Piedmont; Great Plains; Midwest; Northcentral; Northeast	mid	P		Very High	Very High	FAC,FACW
Helianthus angustifolius	Narrow Leaf Sunflower	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns. & Piedmont; Great Plains; Midwest; Northcentral; Northeast	mid-late	P		Very High	Very High	FACW,FAC
Helianthus petiolaris	Prairie Sunflower	Native	Arid West; Great Plains; Midwest; Northcentral	Mid to Late	A		High	Very High	
Helianthus salicifolius	Willow-leaf Sunflower	Native	Great Plains; Midwest	Late	P	Rhizomatous	High	Very High	
Helianthus tuberosus	Jerusalem's Artichoke	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns & Piedmont; Great Plains; Midwest; Northcentral; Northeast	Late	P		High	Very High	FACU
Heliopsis helianthoides	Smooth Oxeye	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns & Piedmont; Great Plains; Midwest; Northcentral; Northeast	Late	P		High	Very High	UPL, FACU
Hydrophyllum virginianum	Eastern Waterleaf	Native	Eastern Mtns. & Piedmont; Midwest; Northcentral; Northeast	Early	P	Rhizomatous	High	Very High	FAC, FACW
Liatris aspera	Tall Blazing Star	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns & Piedmont; Great Plains; Midwest; Northcentral	Mid to Late	P		High	Very High	
Liatris punctata	Dotted Gayfeather	Native	Great Plains; Midwest; Northcentral	Late	P		High	Very High	
Liatris pycnostachya	Prairie Blazing Star	Native	Great Plains; Midwest; Northcentral	Mid to Late	P		High	Very High	FAC, FACU
Liatris spicata	Spiked Gayfeather	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns. & Piedmont; Great Plains; Midwest; Northcentral; Northeast	mid-late	P		High	Very High	FAC,FACU
Lobelia siphilitica	Blue Lobelia	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns. & Piedmont; Great Plains; Midwest; Northcentral; Northeast	mid-late	P		Very High	Very High	FACW,OBL
Lobularia maritima	Sweet Alyssum	Introduced	Arid West; Eastern Mtns & Piedmont; Great Plains; Midwest; Northcentral; Northeast; Western Mtns, Valleys & Coast	Early to Late	A/P		High	High	
Lotus corniculatus	Birdsfoot Trefoil	Introduced	Eastern Mtns. & Piedmont; Great Plains; Midwest; Northcentral; Northeast	Mid	P	Can be weedy or invasive in certain environments.	Very High		
Machaeranthera tanacetifolia	Tansyleaf Tansyaster	Native	Arid West; Great Plains	Early to Late	A/B		High	Very High	
Melilotus officinalis	White Blossom Sweet Clover	Introduced	Arid West; Atlantic & Gulf Coastal Plain; Eastern Mtns & Piedmont; Great Plains; Midwest; Northcentral; Northeast	Mid	B	In areas with >38" annual precipitation, can be aggressive	Very High	Very High	
Melilotus officinalis	Yellow Blossom Sweet Clover	Introduced	Arid West; Atlantic & Gulf Coastal Plain; Eastern Mtns & Piedmont; Great Plains; Midwest; Northcentral; Northeast	Mid	B	In areas with >38" annual precipitation, can be aggressive	Very High	Very High	
Mentha arvensis	Wild Mint	Native	Eastern Mtns & Piedmont; Great Plains; Midwest; Northcentral; Northeast; Western Mtns., Valleys & Coast		P	Rhizomatous	Very High	Very High	FACW
Monarda citriodora	Lemon Beebalm	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns. & Piedmont; Great Plains; Midwest	Late	A		High	Very High	UPL,FACU
Monarda fistulosa	Bergamot	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns. & Piedmont; Great Plains, Midwest; Northcentral; Northeast; Western Mtns, Valleys & Coast	Mid	P		High	Very High	UPL, FACU
Penstemon gracilis	Slender Beardstongue	Native	Great Plains; Midwest; Northcentral	Early	P		High	Very High	UPL, FACU
Penstemon grandiflorus	Shell-leaf Penstemon	Native	Great Plains; Midwest; Northcentral	Early to Mid	P		High	Very High	

HONEY BEE HEALTH COALITION

Honey Bee Health Coalition Recommendations
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Phacelia angelia	Phacelia	Introduced		Early	A		Very High		
Potentilla thurberi	Scarlet Cinquefoil	Native	Western Mtns, Valleys & Coast	Mid	P		Very High	Very High	FACW
Pycnanthemum muticum	Bigleaf Mountain Mint	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns. & Piedmont; Great Plains; Midwest; Northcentral; Northeast	mid	P	Rhizomatous	Very High	Very High	FACW,FAC
Ratibida columnifera	Upright Prairie Coneflower	Native	Arid West; Great Plains; Midwest; North Central	Mid	P		High	Very High	
Rudbeckia hirta	Black-Eyed Susan	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns. & Piedmont; Midwest; Northcentral; Northeast; Western Mtns, Valleys & Coast	Mid to Late	P		High		FACU
Salvia azurea	Pitcher's Sage	Native	Atlantic & Gulf Coastal Plain; Great Plains; Midwest	Late	P		Very High	Very High	
Senna hebecarpa	Wild Senna	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns. & Piedmont; Great Plains; Midwest; Northcentral; Northeast	mid	P		Very High	High	FAC,FAW
Silphium integrifolium	Entire-leaf Rosinweed	Native	Eastern Mtns & Piedmont; Great Plains; Midwest; Northcentral;	Mid	P		Very High	Very High	FAC, FACU
Silphium laciniatum	Compass Plant	Native	Great Plains; Midwest; Northcentral	Mid to Late	P		Very High	Very High	
Silphium perfoliatum	Cup Plant	Native	Eastern Mtns & Piedmont; Midwest; Northcentral ; Northeast	Mid	P		Very High	Very High	FAC, FACW
Solidago nemoralis	Gray Goldenrod	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns. & Piedmont; Great Plains; Midwest; Northcentral; Northeast	Late	P		Very High	Very High	
Solidago speciosa		Native	Atlantic & Gulf Coastal Plain; Eastern Mtns & Piedmont; Great Plains; Midwest; Northcentral; Northeast	Late	P		Very High	Very High	
Symphyotrichum ericoides	Heath Aster	Native	Great Plains; Midwest; Northcentral; Northeast	Late	P	Rhizomatous	High	Very High	
Symphyotrichum laeve	Smooth Aster	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns. & Piedmont; Great Plains; Midwest; Northcentral; Northeast; Western Mtns, Valleys & Coast	Late	P		High	Very High	
Symphyotrichum novae-angliae	New England Aster	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns. & Piedmont; Great Plains; Midwest; Northcentral; Northeast	Late	P		Very High	Very High	FACW
Tradescantia ohiensis	Ohio Spiderwort	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns. & Piedmont; Great Plains; Midwest; Northcentral; Northeast	Early to Mid	P		Very High	Very High	FAC,FACU
Verbena hastata	Blue Vervain	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns. & Piedmont; Great Plains; Midwest; Northcentral; Northeast	Mid	P		High	High	FAC,FACW
Verbena stricta	Hoary Vervain	Native	Eastern Mtns & Piedmont; Great Plains; Midwest; Northcentral ; Northeast	Mid	A/P		Very High	Very High	
Verbesina encelioides	Golden Crownbeard	Native	Arid West; Great Plains	Mid to Late	A		High	Very High	FAC, FACU
Vernonia fasciculata	Ironweed	Native	Great Plains; Midwest; Northcentral	Mid	P		Very High	Very High	FAC, FACW
Vernonia gigantea	Giant Ironweed	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns. & Piedmont; Great Plains; Midwest; Northcentral; Northeast	Mid to Late	P		Very High	Very High	FAC
Vernonia noveboracensis	New York Ironweed	Native	Atlantic & Gulf Coastal Plain; Eastern Mtns. & Piedmont; Great Plains; Midwest; Northcentral; Northeast	Mid to Late	P		Very High	Very High	FACW,FAC

HONEY BEE HEALTH COALITION

Honey Bee Health Coalition Recommendations
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Veronicastrum virginicum	Culver's Root	N	Eastern Mountains & Piedmont; Midwest; Northcentral; Northeast	Mid	P		Very High	Very High	FAC, FACU, FACW

***USDA Wetland Indicator Status Regions**

Arid West: AZ, CA, CO, ID, MT, NV, NM, OR, TX, UT, WA, WY
Atlantic and Gulf Coastal Plain: AL, AR, DC, DE, FL, GA, IL, KY, LA, MD, MS, MO, NC, NJ, OK, PA, SC, TN, TX, VA
Eastern Mountains and Piedmont: AL, AR, DC, DE, GA, IL, IN, KS, KY, MD, MO, NC, NJ, NY, OH, OK, PA, SC, TN, VA, WV
Great Plains: CO, KS, MN, MT, NE, NM, ND, OK, SD, TX, WY
Midwest: IL, IN, IA, KS, KY, MI, MN, MO, NE, ND, OK, OH, SD, WI
Northcentral: IL, IN, MI, MN, OH, WI
Northeast: CT, MA, ME, NH, NJ, NY, PA, RI, VT
Western Mountains, Valleys, and Coast: AZ, CA, CO, ID, MT, NV, NM, OR, SD, UT, WA, WY