Recommendations for next steps to address herbicide resistance summarized from the evaluations shared by Listening Session participants from each region.

|  |  |
| --- | --- |
| **Region** | **Recommended next stepsa** |
| **Mid-southb** | More education - for the public, growers, consultants, producers, manufacturers, distributors, applicators, and dealers; of new herbicide systems and technologies; of the steps involved to properly control herbicide-resistant weeds; and of stewardship of traits |
|  | Develop BMPs for controlling resistant weeds and have more meetings to train growers in them. Involve USDA. |
|  | More collaboration/working together/all growers on board (not just local, but nationwide) |
|  | Use an all-of-the-above, systems approach for weed control, including chemical control, tillage, mowing, cover crops, seed destruction, and other alternatives. |
|  | EPA needs to relax regulations and get on the growers' side. |
|  | Need new herbicides/chemistries/MOA VERY SOON, especially for control of pigweeds |
|  | Regional/local approach for organization, meetings, and education |
|  | State Extension should take the lead (also with industry collaboration) with a consistent message and research updates. |
|  | More research and more money for university research |
|  | Set up a committee/find common ground among industry, growers |
|  | Chemical companies - work together on products & technology, more focus, ramp up R&D with a focus on new chemistries instead of pre-mixes |
|  | Accountability/government enforcement of labels |
|  | Consider developing an eradication program like for boll weevil |
|  | Set up industry/grower/consultant/regulatory/scientific committee to find common ground and figure out how to implement strategies to slow herbicide resistance. |
|  | Get all players to table - MS Dept. of Plant Industry, county road crews, DOT, landscaping groups - these things are EVERYWHERE (yards, parking lot, business, roadsides, etc.). Cannot control without ALL parties involved. |
|  | Focus on pigweed only, not herbicide resistance. |
|  | Newer technology for equipment and chemicals |
|  | A lot of discussion around Palmer pigweed - maybe bring up resistance in barnyardgrass, flat sedge, etc. What is the best program approach in the future? |
|  | Get landowners involved, maybe with incentives |
| **Mid-west** | Continue dialogue, collaboration, and planning among stakeholders |
|  | Education (could be partly funded by pesticide registration fees) |
|  | Need to get information out to all farmers/growers |
|  | Involve commodity groups |
|  | Get industry and public and agencies together. |
|  | More farmer growers |
|  | Perhaps spraying should be a profession and not just another job on the farm. |
|  | Coordinated message from university, industry, and grower organizations to growers so they are hearing the same message |
|  | Promoting IWM for grower adoption and use of "Take action" |
|  | Have farmer panelists go into more detail about their problems and successes with weeds. |
|  | Consolidate the information and bring upper leadership and management with manufacturers and suppliers. |
|  | Fixing how many neighbors do not care |
|  | Incentives |
|  | I/We need to be responsible for all these issues. |
|  | Opportunity for awareness |
|  | Show research results. |
|  | The seed companies should be prohibited from commercializing new seed, until after all overseas import approvals and herbicide application over the top has been approved. |
|  | Strategy - execution and resources to meet needs |
| **Northeast** | Educate everyone (public, farmers, and government) |
|  | Form a consensus of recommendations and practices (including integrated weed management) and make them available to all farmers |
|  | Promote more cooperation and sharing - farmer-to-farmer, with industry, and with extension/government |
|  | Create an incentive program |
|  | Continue research on weed control alternatives |
|  | Have more meetings like this |
|  | Identify low-hanging fruit and start there. Don't spread efforts too thin. |
|  | Need to really get all affected at same table. Those in attendance are largely already informed or "on board." |
|  | More groups represented - small farms, organic growers, veg growers, etc. |
|  | More boots in the field |
|  | Government payments tied to noxious weed on farm |
|  | More discussion of identification of weeds in a more timely manner for appropriate sprays |
|  | Condition seed rather than community bins/sharing seed |
|  | Develop accountability for repeat offenders. |
|  | Be sure the results of all the sessions are shared broadly - companies, retailers, applicators, growers - as an education tool. |
|  | The need to stay ahead of resistance and not get behind |
|  | Action steps to employers - the needs and wants |
|  | The Northeast needs a new attitude about noxious weeds. |
|  | Consistent response/planning from state agencies |
|  | New chemistries (MOA) to control weeds |
|  | Each farmer needs a consultant, whether it be their retailer or independent. |
|  | Increase herbicide-resistant weed plan development opportunities for producers, i.e., when Palmer arrives. |
|  | What is working in the next couple of years and what is not. |
| **Northwest** | Decide who is going to lead future education/collaborations - needs to have university, grower groups, government, industry all working together on this |
|  | Continue these types of meetings involving greater cross sections of industry. Do a better job at promoting resistance prevention |
|  | Solution will be broad based…multi faceted solutions |
|  | Assistance in marketing alt crops and insurance |
|  | Lots of study into how to make what we have work |
|  | Patent extensions |
|  | More round table discussions, more thorough sharing of info |
|  | Meeting to develop coordinated research and extension activities and grants to address the program |
|  | Think outside the box of just chemical, encourage more integrated weed management |
|  | Additional investment in education - develop programs for ag chem to use at their grower meetings; Get general interest HR presentations to extension meetings to growers and consultants |
|  | Creating sub-committees to address certain topics or goals |
|  | Educating everyone on new strategies to combat herbicide resistant weeds and experimenting to find new methods of control to get a handle on these problem weeds |
|  | Establish what magnitude HR is in each county. Stop researching target site/plant cause of resistance and work on solutions |
|  | Identify realistic short-term and long-term steps |
|  | What is real, what is doable. Changing the public perception of pesticides is a necessary step to government policy changes to improve management of resistance is probably not going to happen |
|  | Convince commodity commissions to take an active leadership role |
|  | Collecting all of the regional data and having a solution round table |
|  | Continue with multistake/multi organization round table session in addition to the already speeches we hear from researchers |
| **Plains** | Educating everyone (Ag and non-Ag) about this issue |
|  | More specific solutions, including digital information and systems approach |
|  | Getting new chemistry to market |
|  | Continue meetings like this to solve problem |
|  | Send meeting results to participants |
|  | Have local (community) meetings |
|  | Research (not just quick fixes) by universities, industry, and ARS |
|  | Think outside the box and share solutions |
|  | Involve all stakeholders - it will take every producer to fight this problem. |
|  | Universities, government agencies, grower organizations need to communicate problems to USDA. |
|  | Send out "Take Action" flyer and an example of how to use it to growers. |
|  | Get USDA to put more money into extension. |
|  | Get the State Pesticide Safety Educators involved. |
|  | Incentivize use of multiple modes of action (tax credit, cost share, etc.) |
|  | I think economics will likely guide the direction of research, new product development, management approaches by growers, thus the money will determine if a new chemistry is brought to market and if growers are able to afford to use the new system/chemistry. |
|  | Continue communicating the problem and strategies. |
|  | Use many non-chemical things along with chemicals. |
|  | Get state/national NRCS staff involved to hear how it will take more than no-till/cover crops to address the issue of HR |
|  | The lobbying by commodity groups is key. |
|  | Crop rotations - good stands of crops are best weed control |
|  | Actionable plans. HRM management planning certified with qualified personnel. |
| **Southeast** | Increase grower education efforts. |
|  | Communicate the issue, especially through the media. |
|  | Get government agencies involved (e.g., USDA, EPA, NRCS). |
|  | Share successes and failures from growers (what works and what doesn't). |
|  | Be stewards, i.e., try to preserve the chemistry as long as possible. |
|  | Research area opportunities: 1. Biological control of weeds (pigweed and others); 2. Genetically altering pigweed (sterile gene, make it weaker,etc.); 3. Products to sterilize or kill pollen; 4. Develop allelopathic products that growers could apply or spray; 5. New GMO technology development; 6. Better crop prices; 7. Irrigation |
|  | Changes to Farm Bill |
|  | Greater industry input about where we are headed for future weed control options |
|  | Focus on the main topics we discussed |
|  | Get it done with science! |
|  | Use of cover crops |
| **Southwest** | Education - for growers through more meetings and for consumers through modern media |
|  | Continue to communicate broadly and move into collaboration |
|  | Need more training of growers, PCAs, and regulators, including of chemistry rotation, proper application, what has worked and what hasn't, record keeping |
|  | Provide this meeting information/summary to participants |
|  | Provide information on how to identify herbicide-resistant weeds and then strategies on how to manage them |
|  | Develop integrated approach |
|  | Keep doing what I've been. |
|  | More on-farm cooperative research |
|  | Combine the challenges and information from these meetings with the results of your grower survey to get grant funding! |
|  | Bring in more representatives for non-chemical control. |
|  | That we develop a survey (format) to collect potential herbicide tolerance or resistance |
|  | Round tables organized by identified problems might allow more focus on solutions. |
|  | Go to a more local level. |
|  | What did we learn from last meeting? |
|  | Good question - What's next? What can WSSA do? |
|  | Fund |
|  | The need to change regulations |
|  | Getting farm advisors on board with more field days |

a Summarized responses from participants who completed the listening session evaluation at the close of the day.

b Forty-six total responses – a subset is listed here.