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I. EDUCATION

Doctor of Philosophy in Plant Science, Montana State University, Bozeman, MT. Completed in May, 2015 with OGPA of 3.95/4.00. Dissertation title: “*Confirmation and Management of Glyphosate-Resistant Kochia (Kochia scoparia) in Montana*” <http://gradworks.umi.com>

Master of Science in Agronomy, Louisiana State University, Baton Rouge, LA 70803. Completed in May, 2011 with OGPA of 3.87/4.00.

Thesis title: “*Stage-specific Cotton Water Use Crop Coefficients in Northeast Louisiana*”

Bachelor of Science in Agriculture, Punjab Agricultural University, Ludhiana, Punjab, India. Completed in July, 2008 with OCPA of 8.34/10.00. Major: Crop Science

Diploma in Agriculture, Institute of Agriculture, Gurdaspur, Punjab, India. Completed in July 2004 with OCPA of 9.02/10.00.

II. APPOINTMENTS

September 2017-Present: Assistant Professor- Weed Science (12-month, tenure-track: 100% Research), Department of Agronomy, Kansas State University, Agricultural Research Center, Hays, KS

June 2015- August 2017: Post-Doctoral Researcher-Weed Science, Department of Research Centers, Montana State University, Southern Agricultural Research Center, Huntley, MT

June 2011-May 2015: Graduate Research Assistant (Ph.D. Student), Department of Plant Sciences and Plant Pathology, Montana State University, Bozeman, MT

June 2009-May 2011: Graduate Research Assistant (M.S. Student), School of Plant, Environmental, and Soil Sciences, Louisiana State University, Baton Rouge, LA

III. RESEARCH ACTIVITIES**III. A. Publications**

Google Scholar Citation Indices	All	Since 2013
Citations	228	226
h-index	9	9
i10-index	8	8

Total Peer Reviewed Publications: 38**Refereed Journal Publications: 33**

1. **Kumar V.,** P. Jha, N. Reichard. 2014. Occurrence and Characterization of Kochia (*Kochia scoparia*) Accessions with Resistance to Glyphosate in Montana. *Weed Technology*. 28:122-130. DOI: <http://dx.doi.org/10.1614/WT-D-13-00115.1> (A photograph from this study was selected by the editorial board and it was published on a cover page of *Weed Technology* volume 29, issue 1, 2015).
2. **Kumar V.,** P. Jha, D. Giacomini, E. Westra, P. Westra. 2015. Molecular Basis of Evolved Resistance to Glyphosate and Acetolactate Synthase-Inhibitor Herbicides in Kochia (*Kochia scoparia*) Accessions from Montana. *Weed Science*. 63: 758-769. DOI: <http://dx.doi.org/10.1614/WS-D-15-00021.1>.
3. **Kumar V.,** P. Jha. 2015. Effective Preemergence and Postemergence Herbicide Programs for Kochia Control. *Weed Technology*. 29: 24-34. DOI: <http://dx.doi.org/10.1614/WT-D-14-00026.1>
4. **Kumar V.,** P. Jha. 2015. Influence of Herbicides Applied Postharvest in Wheat Stubble on Control, Fecundity, and Progeny Fitness of *Kochia scoparia*. *Crop Protection*. 71:144-149. DOI: [10.1016/j.cropro.2015.02.016](https://doi.org/10.1016/j.cropro.2015.02.016).
5. **Kumar V.,** P. Jha. 2015. Control of Volunteer Glyphosate-Resistant Canola in Glyphosate-Resistant Sugar Beet. *Weed Technology*. 29:93-100. DOI: <http://dx.doi.org/10.1614/WT-D-14-00059.1>.
6. **Kumar V.,** P. Jha. 2015. Influence of Glyphosate Timing on *Kochia scoparia* Demographics in Glyphosate-Resistant Sugar Beet. *Crop Protection*. 76:39-45. DOI: [10.1016/j.cropro.2015.06.010](https://doi.org/10.1016/j.cropro.2015.06.010).
7. **Kumar V.,** T. K. Udeigwe, E. Clawson, R. Rohli, D. Miller. 2015. Crop Water Use and Stage-specific Crop Coefficients for Irrigated Cotton in mid-South United States. *Agricultural Water Management*. 15:63-69. DOI: [10.1016/j.agwat.2015.03.022](https://doi.org/10.1016/j.agwat.2015.03.022).
8. **Kumar V.,** P. Jha. 2015. Growth and Reproduction of Glyphosate-Resistant and Susceptible Populations of *Kochia scoparia*. *PLoS One*. 10(11): e0142675. DOI: [10.1371/journal.pone.0142675](https://doi.org/10.1371/journal.pone.0142675).
9. Jha P., **V. Kumar,** J. Garcia, N. Reichard. 2015. Tank-Mixing Pendimethalin with Pyroxasulfone and Chloroacetamide Herbicides Enhances In-Season Residual Weed Control in Corn. *Weed Technology*. 29:198-206. DOI: <http://dx.doi.org/10.1614/WT-D-14-00095.1>.
10. Jha P., J. K. Norsworthy, **V. Kumar,** N. Reichard. 2015. Annual Changes in Temperature and Light Requirements for *Ipomoea purpurea* Seed Germination with After-Ripening in the Field following Dispersal. *Crop Protection*. 67:84-90. DOI: [10.1016/j.cropro.2014.09.021](https://doi.org/10.1016/j.cropro.2014.09.021).

11. Jha P., **V. Kumar**. 2015. Variable Response of Kochia [*Kochia scoparia* (L.) Schrad] to Auxinic Herbicides Dicamba and Fluroxypyr in Montana. **Canadian Journal of Plant Science**. 95 (5): 965-972. [10.4141/CJPS-2015-019](https://doi.org/10.4141/CJPS-2015-019).
12. Udeigwe T. K., J. M. Teboh, P. N. Eze, M. H. Stietiya, **V. Kumar**, J. Hendrix, H. J. Mascagni (Jr), T. Ying, T. Kandakji. 2015. Implications of Leading Crop Production Practices on Environmental Quality and Human Health. **Journal of Environmental Management**. 151: 267-279. [DOI:10.1016/j.jenvman.2014.11.024](https://doi.org/10.1016/j.jenvman.2014.11.024).
13. Jha P., **V. Kumar**, C. A. Lim. 2016. Herbicide Resistance in Cereal Production Systems of US Great Plains: A Review. **Indian Journal of Weed Science**. 48 (2):1–5. <http://dx.doi.org/10.5958/0974-8164.2016.00030.7>
14. Jha P., **V. Kumar**, R. K. Godara, B.S. Chauhan. 2016. Weed management using crop competition in the United States. **Crop Protection**. [Doi:10.1016/j.cropro.2016.06.021](https://doi.org/10.1016/j.cropro.2016.06.021)
15. **Kumar V.**, P. Jha. 2016. Influence of Nitrogen Rate, Seeding Rate, and Weed Removal Timing on Weed Interference in Barley and Effect of Nitrogen on Weed Response to Herbicides. **Weed Science**. [DOI: http://dx.doi.org/10.1614/WS-D-16-00047.1](http://dx.doi.org/10.1614/WS-D-16-00047.1)
16. **Kumar V.**, P. Jha. 2016. Differences in Germination, Growth, and Fecundity Characteristics of Dicamba-Fluroxypyr-Resistant and -Susceptible *Kochia scoparia*. **PLoS One**. <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0161533>.
17. Gaines T. A., A. L. Barker, E. L. Patterson, P. Westra, E. P. Westra, R. G. Wilson, P. Jha, **V. Kumar**, A. R. Kniss. 2016. EPSPS Gene Copy Number and Whole-Plant Glyphosate Resistance Level in *Kochia scoparia*. **PLoS One**. <http://journals.plos.org/plosone/article?id=10.1371%2Fjournal.pone.0168295>.
18. **Kumar V.**, P. Jha. 2017. Effect of Temperature on Germination Characteristics of Glyphosate-Resistant and -Susceptible *Kochia scoparia*. **Weed Science**. <https://doi.org/10.1017/wsc.2016.26>
19. **Kumar V.**, P. Jha., J. F. Spring, D. J. Lyon, I. C. Burke. 2017. Glyphosate-Resistant Russian thistle (*Salsola tragus* L.) Identified in Montana and Washington. **Weed Technology**. <https://doi.org/10.1017/wet.2016.32>
20. **Kumar V.**, P. Jha, A. Jhala. 2017. Confirmation of Glyphosate-Resistant Horseweed (*Conyza canadensis* L.) in Montana Cereal Production and Response to Postemergence Herbicides. **Weed Technology**. <https://doi.org/10.1017/wet.2017.49>.
21. Jha P., **V. Kumar**. 2017. Fall-Applied Soil-Residual Herbicides for Crop Safety and Weed Control in Pulse Crops. **Agronomy Journal**. [Doi:10.2134/agronj2017.06.0320](https://doi.org/10.2134/agronj2017.06.0320).

22. **Kumar V.**, P. Jha. 2017. First Report of Ser₆₅₃Asn Mutation Endowing High-level Resistance to Imazamox in Downy brome (*Bromus tectorum* L.). **Pest Management Science**. <http://onlinelibrary.wiley.com/doi/10.1002/ps.4673/full>.
23. **Kumar V.**, P. Jha, J. A. Dille, P. W. Stahlman. 2017. Emergence Dynamics of Kochia (*Kochia scoparia*) Populations from the US Great Plains: A Multi-Site-Year Study. **Weed Science**. <https://doi.org/10.1017/wsc.2017.55>.
24. **Kumar V.**, J. Felix, D. Morishita, P. Jha. 2017. Confirmation of Glyphosate-Resistant Kochia (*Kochia scoparia* L.) from Sugar Beet Fields in Idaho and Oregon. **Weed Technology**. DOI: [10.1017/wet.2017.80](https://doi.org/10.1017/wet.2017.80).
25. **Kumar V.**, P. Jha., A. J. Jhala. 2017. Using Pyroxasulfone for Downy Brome (*Bromus tectorum* L.) Control in Winter Wheat. **American Journal of Plant Sciences**. DOI: [10.4236/ajps.2017.810159](https://doi.org/10.4236/ajps.2017.810159).
26. Jha P., **V. Kumar**, C. A. Lim, R. Yadav. 2017. Evaluation of Preemergence Herbicides for Crop Safety and Weed Control in Safflower. **American Journal of Plant Sciences**. DOI: [10.4236/ajps.2017.810158](https://doi.org/10.4236/ajps.2017.810158).
27. Ganie Z.A., S. Kaur, P. Jha, **V. Kumar**, A. J. Jhala. 2017. Effect of Late-Season Herbicide Applications on Inflorescence and Seed Production of Glyphosate-Resistant Giant Ragweed (*Ambrosia trifida* L.). **Weed Technology**. <https://doi.org/10.1017/wet.2017.101>
28. Shaw J., P. Jha, P. Nugent, A. Donelick, B. Scherrer, **V. Kumar**. 2017. Discrimination of Herbicide-Resistant Weeds with Hyperspectral Imaging. **Journal of Applied Remote Sensing**. DOI:[10.1117/1.JRS.12.016037](https://doi.org/10.1117/1.JRS.12.016037).
29. **Kumar V.**, P. Jha, C.A. Lim, P. W. Stahlman. 2018. Differential Germination Characteristics of Dicamba-Resistant Kochia (*Bassia scoparia*) Populations in Response to Temperature. **Weed Science**. <https://doi.org/10.1017/wsc.2018.54>.
30. **Kumar V.**, P. Jha, M. Jugulam, R. Yadav, P. W. Stahlman. 2018. Herbicide-Resistant Kochia (*Bassia scoparia*) in North America: A Review. **Weed Science**. doi: 10.1017/wsc.2018.72
31. **Kumar V.**, R. P. Engel, R. Currie, P. Jha, P. Stahlman, C. Thompson. 2018. Dicamba-Resistant Kochia (*Bassia scoparia*) in Kansas: Characterization and Management with Fall- or Spring-Applied Preemergence Herbicides. **Weed Technology**. In-Press.
32. **Kumar V.**, R. Currie, P. Jha, P.W. Stahlman. 2018. First Report of Kochia (*Bassia scoparia*) with Cross-Resistance to Dicamba and Fluroxypyr in Western Kansas. **Weed Technology**. In-Press.

33. Mikha M., A. Obour, **V. Kumar**, P. W. Stahlman. 2018. Soil Chemical Properties Influenced by Nitrogen Fertilizer Sources and Rates. **Journal of Soil and Water Conservation**. Submitted.

First Reports on Herbicide-Resistant Weeds: 2

1. Occurrence of a *Downy brome* Population with Cross Resistance to ALS Inhibitors. (**First Confirmed Case from Montana**). Reported in fall 2016 from Clearfield® Wheat field in Carter County, MT. Available at <http://weedsience.com/Details/Case.aspx?ResistID=15071>.
2. Confirmation of Glyphosate-Resistant *Russian-thistle* Biotype in Montana. (**First Confirmed Global Case**). Reported in fall 2015 from chemical-fallow field in Choteau County, MT. Available at <http://weedsience.com/Details/Case.aspx?ResistID=12032>.

Peer-Reviewed Extension Publications: 5

1. **Kumar V.**, P. W. Stahlman, G. Boyer. 2018. Palmer Amaranth Populations from Kansas with Multiple Resistance to Glyphosate, Chlorsulfuron, Mesotrione, and Atrazine. Kansas Agricultural Experiment Station Research Reports: Vol. 4: Iss. 7. <https://doi.org/10.4148/2378-5977.7611>
2. **Kumar, V.**, P.W. Stahlman, R. Currie, R. Engel, G. Boyer (2018) Variable Response of Kochia Accessions to Dicamba and Fluroxypyr in Western Kansas. Kansas Agricultural Experiment Station Research Reports: Vol. 4: Iss. 7. <https://doi.org/10.4148/2378-5977.7612>
3. Thompson, C. R., D. E. Peterson, W. H. Fick, R. S. Currie, **V. Kumar**, J.W. Slocomb. 2018. Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland. Report of Progress 1139. Kansas State University, January 2018. Contribution no. 18-215-S from the Kansas Agricultural Experiment Station.
4. Jha P., K. McVay, A. Varanasi, **V. Kumar**. 2013. Glyphosate-Resistant Kochia in Montana: Herbicide Recommendations and Best Management Practices for Growers. 4602. Montana State University Extension Research Bulletin. Available at <http://store.msueextension.org/publications/AgandNaturalResources/4602.pdf>
5. Jha P., **V. Kumar**. 2013. Effect of Fertilizer N on Crop-Weed Interactions in Montana Cereal Production. 64. Montana State University Extension Agricultural Experiment Station. Available at <http://www.sarc.montana.edu/php/Research/ffacts/?id=64>.

Non-Refereed Publications

- **Conference Proceedings: 62** (32 oral presentations, 40 poster presentations)
These include proceedings/abstracts from international, national, and regional weed science meetings.

Oral Presentations

1. **Kumar V.**, P. Jha, D. W. Morishita, R. Yadav, A. J., C. A. Lim. 2018. Enhanced Tolerance of Common Lambsquarters (*Chenopodium album*) to Glyphosate in Corn-Sugar Beet Rotations in the Western U.S. Proc. of Weed Sci. Soc. Am., Jan 29–Feb 1, Arlington, VA.
2. Lim C. A., P. Jha, Anjani J., **V. Kumar**. 2018. Reproductive Fitness of Glyphosate-Resistant and Dicamba-Resistant Kochia (*Kochia scoparia*) in the Presence or Absence of Glyphosate and Dicamba. Proc. of Weed Sci. Soc. Am., Jan 29–Feb 1, Arlington, VA.
3. **Kumar V.**, P. W. Stahlman, G. Boyer. 2018. Characterization of Palmer Amaranth Populations from Kansas with Resistance to Multiple Herbicides. Proc. West. Soc. Weed Sci., Mar 12–15, Garden Grove, CA.
4. **Kumar V.**, P. Jha, P. W. Stahlman, Anjani J. 2017. Confirmation and Management of ALS-Resistant Downy brome in Wheat Production Systems of the U.S. Great Plains. Proc. North Central Weed Sci. Soc., Dec 4–7, Saint Louis, MO.
5. Jha P., **V. Kumar**, A. R. Kniss, G. Sbatella, N. Lawrence. 2017. Herbicide-Resistant Kochia in the US Great Palins: What We Know and Path Forward. Global Herbicide Resistance Challenge. Denver, CO, USA. May 14-18.
6. **Kumar V.**, P. Jha, J. F. Spring, Anjani J, D. Lyon, I. C. Burke. 2017. Confirmation and Management of Glyphosate-Resistant Russian thistle (*Salsola tragus* L.) from Montana and Washington. Proc. West. Weed Sci. 78.
7. Lim C.A., P. Jha, **V. Kumar**, S. Leland, Anjani J. 2017. Survival, Growth, and Reproductive Fitness of Dicamba-Resistant Kochia in the Presence of Dicamba. Proc. West Weed Sci. 127.
8. **Kumar V.**, P. Jha, Anjani J., S. Leland. 2017. Confirmation and Mechanism of Resistance to Imazamox in Downy Brome (*Bromus tectorum* L.) from Montana. Proc. West. Weed Sci. 164.
9. Jha P., J. Shaw, **V. Kumar**, P. Nugent. 2017. Hyperspectral Imaging to Detect Herbicide-Resistant Weeds In-Crop: Convergence of Optical and Ag Technologies. Proc. West. Weed Sci. 166.
10. **Kumar V.**, P. Jha, J. F. Spring, Anjani J, V. K. Nandula, K. N. Reddy, D. Lyon, I. C. Burke. 2017. Characterization of Glyphosate-Resistant Russian thistle (*Salsola tragus* L.) Populations in Montana and Pacific Northwest. Proc. Weed Sci. Soc. Am. 330.
11. Jha P., **V. Kumar**, Anjani J., S. Leland. 2017. Field-evolved Resistance of Downy brome (*Bromus tectorum* L.) to Imazamox in Cereal Production. Proc. Weed Sci. Soc. Am. 327.
12. **Kumar V.**, P. Jha, C. A. Lim, Anjani J, S. Leland. 2016. Biology and Management of Volunteer Buckwheat in Wheat. Proc. West. Soc. Weed Sci. 108.

13. **Kumar V.**, P. Jha, C. A. Lim, Anjani J, S. Leland. 2016. Correlation between Dormancy and Herbicide Resistance Levels in Kochia. Proc. Weed Sci. Soc. Am. 372.
14. Jha P., C. A. Lim, **V. Kumar**, Anjani J, S. Leland. 2016. Effect of Glyphosate Selection on Survival and Fecundity Characteristics of Glyphosate-Resistant Kochia with Variable EPSPS Gene Copies. Proc. Weed Sci. Soc. Am. 376.
15. Jha P, **V. Kumar**, C. A. Lim, A. Jha. 2015. Key Herbicide-Resistant Weeds in the Cereal Production Systems of US Great Plains. Proceedings of 25th Asian-Pacific Weed Sci. Soc. Conf. on “Weed Science for Sustainable Agriculture, Environment and Biodiversity”, Hyderabad, India, Oct 13-16.
16. **Kumar V.**, P. Jha, S. Leland, C. A. Lim, S. Misra. 2015. Correlation of EPSPS Gene Amplification with Resistance Level and Fitness of Glyphosate-Resistant Kochia. Proc. West. Soc. Weed Sci. 95.
17. Jha P., C. A. Lim, **V. Kumar**, S. Leland. 2015. Characterization of Multiple Herbicide Resistance in Kochia Accessions from Montana. Proc. Weed Sci. Soc. Am. 271.
18. Jha P., **V. Kumar**, S. Leland, C. Lim. 2015. Management of Herbicide-Resistant Kochia in Montana. Proceedings of Montana/Wyoming Sugar beet and Barley Symposium, Billings, MT, January 6-7.
19. **Kumar V.**, P. Jha, P. Westra, E. Westra, D. Giacomini, C. Vanhorn, A. Varanasi. 2014. Evolution of Multiple Herbicide-Resistant Kochia: A Threat to Montana Wheat-Fallow Cropping System. West. Soc. Crop Sci. meeting at Bozeman, MT, USA.
20. **Kumar V.**, P. Jha, P. Westra, E. Westra, D. Giacomini, C. Vanhorn. 2014. EPSPS Gene Amplification Confers Glyphosate Resistance in Kochia Populations from Montana. Proc. Weed Sci. Soc. Am. 381.
21. **Kumar V.**, P. Jha, A. Varanasi. 2014. Ecological Fitness of Auxinic Herbicide-Resistant Kochia. Proc. West. Soc. Weed Sci. 80.
22. Jha P., A. Varanasi, **V. Kumar**, S. Leland. 2014. Current Status of Herbicide-Resistant Kochia in Montana. Proc. West. Soc. Weed Sci. 89.
23. Varanasi A., P. Jha, **V. Kumar**, S. Leland. 2014. Comparative Growth of Kochia (*Kochia scoparia*) Accessions From Northern and Central Great Plains. Proc. Weed. Sci. Soc. Am. 315.
24. **Kumar V.**, P. Jha, N. Reichard, and J. R. KC. 2013. Influence of Glyphosate Timing(s) on Kochia Cohorts in Glyphosate-Resistant Sugar Beet. Proc. Weed. Sci. Soc. Am. 326.
25. **Kumar V.**, P. Jha, N. Reichard, and J. R. KC. 2013. Integrated Herbicide Programs for Weed Management in Glyphosate-Resistant Sugar Beet. Proc. West. Soc. Weed Sci. 101.

26. Jha P., **V. Kumar**, and N. Reichard. 2013. Kochia Management without Glyphosate in Montana. Proc. West. Soc. Weed Sci. 154.
27. Jha P., **V. Kumar**, and N. Reichard. 2013. Non-glyphosate Herbicide Programs for Kochia Management. Proc. Weed Sci. Soc. Am. 232.
28. **Kumar V.**, P. Jha., N. Reichard. 2012. Herbicide Programs for Kochia Management Revisited. Proc. West. Soc. Weed Sci. 65:121.
29. Jha P., **V. Kumar**, and N. Reichard. 2012. Volunteer Glyphosate-Resistant Canola Control in Glyphosate-Resistant Sugar Beet. Proc. Weed Sci. Soc. Am. 371.
30. Jha P., **V. Kumar**, and N. Reichard. 2012. Herbicide Programs for Control of Volunteer Glyphosate-Resistant Canola in Glyphosate-Resistant Sugar Beet. Proc. West. Soc. Weed Sci. 65:122.
31. Udeigwe T. K., **V. Kumar**. 2011. Local Reference Evapotranspiration Estimation and the Application to Crop Coefficient Development in Northeast Louisiana (Mid-South). ASA-CSSA-SSSA International Annual Meetings. Saint Antonio, Texas.
32. **Kumar V.**, E. Clawson, T.K. Udeigwe, R. Sheffield, J. Chiu, and S. Hribal. 2010. Cotton Crop Coefficients (K_c) for Northeast Louisiana using Weighing Lysimeters. Proc. Beltwide Cotton Conf. New Orleans, LA, January 4-6.

Poster Presentations

1. **Kumar V.**, P.W. Stahlman, G. Boyer. 2018. Investigation of Multiple Herbicide Resistance in Palmer amaranth Populations in Kansas. Proc. Weed Sci. Soc. Am., Jan 29–Feb 1, Arlington, VA.
2. Engel R.P., **V. Kumar**, P.W. Stahlman, G. Boyer. 2018. Variable Response of Kansas Kochia scoparia Accessions to Dicamba. Proc. Weed Sci. Soc. Am., Jan 29–Feb 1, Arlington, VA.
3. Jha P., **V. Kumar**, Anjani J., R. Yadav, C.A. Lim. 2018. Evolution of ALS-Resistant Downy Brome in Montana Cereal Production. Proc. Weed Sci. Soc. Am., Jan 29–Feb 1, Arlington, VA.
4. Yadav R., P. Jha, **V. Kumar**, S. Leland. 2018. Management of Glyphosate- and Dicamba-Resistant Kochia (Kochia scoparia) in Roundup Ready Xtend Soybean. Proc. Weed Sci. Soc. Am., Jan 29–Feb 1, Arlington, VA.
5. **Kumar V.**, P. W. Stahlman, R. Currie, R. Engel, G. Boyer. 2018. Variable Response of Kochia Populations to Dicamba and Fluroxypyr. Proc. West. Soc. of Weed Sci., Mar 12–15, Garden Grove, CA.

6. Jha P., **V. Kumar**, D. W. Morishita, R. Yadav, Anjani J., C. A. Lim. 2018. Variable Tolerance of Common Lambsquarters to Glyphosate in Corn-Sugarbeet Fields. Proc. West. Soc. of Weed Sci., Mar 12–15, Garden Grove, CA.
7. Yadav R., P. Jha, V. Kumar, S. Leland. 2018. Management of Glyphosate- and Dicamba-Resistant Kochia (*Kochia scoparia*) in Roundup Ready® 2 Xtend Soybean. Proc. West. Soc. of Weed Sci., Mar 12–15, Garden Grove, CA.
8. **Kumar V.**, P. Jha, P. W. Stahlman, M. Jugulam, R.S. Currie, J.A. Dille, D.E. Peterson, C.R. Thompson, D. Shoup. 2017. An Overview of Herbicide-Resistant Weeds in Kansas. Proc. North Cent Weed Sci. Soc., Dec 4–8, Saint Louis, MO.
9. **Kumar V.**, P. Jha, Anjani J., C. A. Lim, S. Leland. 2017. Evolution and Management of Glyphosate-Resistant Weeds in Wheat-Fallow in Montana. Global Herbicide Resistance Challenge. Denver, USA. May 14-18.
10. Jha P., **V. Kumar**, Anjani J., J. F. Spring, D. J. Lyon, I. C. Burke, V. K. Nandula, K. N. Reddy. 2017. Evolution of Glyphosate-Resistant *Salsola tragus* L. (Russian thistle) in Montana and Pacific Northwest. Global Herbicide Resistance Challenge. Denver, USA. May 14-18.
11. Jha P., **V. Kumar**, S. Leland, Anjani J, C. A. Lim. 2017. Evolution of Glyphosate-Resistant Horseweed and Russian thistle in Montana Cereal Production. Proc. West Soc. Weed Sci. 31.
12. Lim C. A., P. Jha, **V. Kumar**, S. Leland, Anjani J. 2017. Survival, Growth, and Fecundity of Kochia Cohorts with Varying Densities Under Different Crop Canopies. Proc. West Soc. Weed Sci. 47. **(1st position in student oral competition at WSWS meeting in Coeur D’Alene, ID).**
13. **Kumar V.**, P. Jha, Anjani J., C. A. Lim, S. Leland. 2017. Confirmation and management of newly evolved glyphosate-resistant Russian-thistle (*Salsola tragus* L.) and horseweed (*Conyza Canadensis* L.) in Montana cereal production. Proc. Weed Sci. Soc. Am. 34.
14. Jha P., **V. Kumar**, P. Nugent, A. Donelick, B. Scherrer, J. Shaw. 2017. Hyperspectral imaging to detect glyphosate-resistant vs. glyphosate-susceptible *Kochia scoparia*: Implications for site-specific management. Proc. Weed Sci. Soc. Am. 62.
15. **Kumar V.**, P. Jha, S. Leland, Anjani J, C. A. Lim. 2016. Seed Germination Dynamics of Herbicide-Resistant and Susceptible Populations of *Kochia scoparia*. Proc. West Soc. Weed Sci. 64.
16. Lim C.A., P. Jha, **V. Kumar**, Anjani J, S. Leland. 2016. Survival and Fecundity of Glyphosate-Resistant Kochia with Variable EPSPS Gene Copies in Response to Glyphosate Selection. Proc. West Soc. Weed Sci. 33. **(1st position in student poster competition at WSWS meeting in Albuquerque, NM).**

17. Jha P., J. Felix, D. Morishita, **V. Kumar**, Anjani J. 2016. Survey of Glyphosate-Resistant Kochia in Eastern Oregon Sugar Beet Fields. Proc. West Soc. Weed Sci. 35.
18. **Kumar V.**, P. Jha, C. A. Lim, Anjani J, S. Leland. 2016. Distribution of Multiple Herbicide-Resistant Kochia in Montana. Proc. Weed Sci. Soc. Am. 204.
19. Jha P., **V. Kumar**. 2015. Best Management Practices (BMPs) for Herbicide Resistance Management: A Review. *25th Asian-Pacific Weed Sci. Soc. Conf.* Hyderabad, India, Oct 13-16.
20. Morishita D., J. Felix, P. Jha, **V. Kumar**. 2015. Confirmation of Glyphosate-Resistant Kochia in Idaho and Oregon. Proc. West. Soc. Weed Sci. 27.
21. Jha P., **V. Kumar**, S. Leland, C. A. Lim. 2015. Variable Response of Kochia to Dicamba and Fluroxypyr in Montana. Proc. West. Soc. Weed Sci. 28.
22. Lim C.A., P. Jha, **V. Kumar**, S. Leland. 2015. Survey of Multiple Herbicide-Resistant Kochia in Montana. Proc. West. Soc. Weed Sci. 31.
23. Lim C. A., P. Jha, **V. Kumar**, S. Leland. 2015. Influence of Pyroxasulfone Rate and Application Timing on Downy Brome Control in Clearfield Winter Wheat. Proc. West. Soc. Weed Sci. 40.
24. **Kumar V.**, P. Jha, M. Flenniken, S. Misra. 2015. Does *EPSPS* Gene Amplification Confer Fitness Cost in Glyphosate-Resistant Kochia? Proc. Weed Sci. Soc. Am. 110.
25. Jha P., D. W. Morsishita, J. Felix, **V. Kumar**, M. Flenniken. 2015. Confirmation of Glyphosate-Resistant Kochia in Idaho and Oregon. Proc. Weed Sci. Soc. Am. 104.
26. Walsh O., P. Jha, A. Varanasi, **V. Kumar**, S. Leland. 2014. Light-Activated Sensor Controlled Sprayer (Weed Seekers[®]) for Cost-Effective Weed Control in Post-Harvest Wheat Stubble. Proc. ASA-CSSA-SSSA International Annual Meeting, Long Beach, CA.
27. **Kumar V.**, P. Jha, P. Westra, E. Westra, D. Giacomini, C. Van Horn, A. Varanasi. 2014. Molecular Characterization of Glyphosate- and Acetolactate Synthase Inhibitor-Resistant Kochia from Montana. Proc. West. Soc. Weed Sci. 21. (**1st position in student poster competition at WSWS meeting in Colorado Spring**).
28. **Kumar V.**, P. Jha, A. Varanasi, S. Leland. 2014. Kochia Management with Herbicides Applied Postharvest in Wheat Stubble. Proc. Weed Sci. Soc. Am. 23.
29. Jha P., **V. Kumar**, A. Varanasi. 2014. Use of Pyroxasulfone for Weed Control in Clearfield[®] Wheat System. Proc. West. Soc. Weed Sci. 34.

30. Jha P., A. Varanasi, **V. Kumar**, S. Leland. 2014. Light-Activated Sensor Controlled Sprayer (Weed Seeker®) for Cost-Effective Weed Control in Post-Harvest Wheat-Stubble. Proc. West. Soc. Weed Sci. 30.
31. Varanasi A., P. Jha, **V. Kumar**, S. Leland. 2014. Emergence Characterization of Kochia (*Kochia scoparia*) Accessions from Northern and Central Great Plains. Proc. Weed Sci. Soc. Am. 83.
32. **Kumar V.**, P. Jha, N. Reichard, J. R. KC. 2013. Does Fertilizer N Influence Crop-Weed Competition and Response to Herbicides? Proc. Weed Sci. Soc. Am. 28.
33. **Kumar V.**, P. Jha, N. Reichard, J. R. KC. 2013. Does Fertilizer N Influence Crop-Weed Competition and Weed Response to Herbicides? Proc. West. Soc. Weed Sci. 42.
34. Jha P., **V. Kumar**, N. Reichard. 2013. Evaluation of Preemergence Residual Herbicide Programs for Weed Control in Glyphosate-Resistant Corn. Proc. Weed Sci. Soc. Am. 5.
35. Jha P., **V. Kumar**, N. Reichard. 2013. Preemergence Residual Herbicides: A Valuable Tool for Weed Control in Glyphosate-Resistant Corn. Proc. West. Soc. Weed Sci. 33.
36. Reichard N., P. Jha, **V. Kumar**. 2013. Evaluation of Pyroxasulfone for Crop Safety and Downy Brome Control in Winter Wheat. Proc. West. Soc. Weed Sci. 41.
37. KC J. R., P. Jha, **V. Kumar**, N. Reichard. 2013. Herbicide Programs for Weed Control in Clearfield Lentils. Proc. West. Soc. Weed Sci. 49.
38. **Kumar V.**, P. Jha., N. Reichard. 2012. Comparison of Fluroxypyr Herbicide Combinations for Broadleaf Weed Control in Spring Wheat. Proc. West Soc. Weed Sci. 65:55.
39. Jha P., **V. Kumar**, N. Reichard. 2012. Zidua (Pyroxasulfone): A New Chemistry for Preemergence Residual Weed Control in Glyphosate-Resistant Corn. Proc. Weed Sci. Soc Am. 4.
40. Jha P., **V. Kumar**, N. Reichard. 2012. Use of Pyroxasulfone for Preemergence Residual Weed Control in Glyphosate-Resistant corn. Proc. West. Soc. Weed Sci. 65:61.

III.B. Grants, Contracts, and Gifts

2018

Funded total [Principal Investigator (PI) and Co-PI]: \$522,213

Funded as Principal Investigator (PI): \$260,800

2018

Funded: \$260,800 (PI)

- Cover crop management options to improve weed control, crop yield and soil health. *US Department of Agriculture (USDA) North Central SARE-Research and Education Program*. **\$16,000** (Co-PI: V. Kumar) Total amount: **\$200,000** [PIs: A. Obour, J.D. Holman, V. Kumar, J. Jaeger]
- Investigation of herbicide resistance in waterhemp and Palmer amaranth in Kansas: survey, mechanism, and management. *Kansas Soybean Commission*. **\$65,000** [PI: **V. Kumar**; Co-PIs: M. Jugulam, D.E. Peterson, D. Shoup, P.W. Stahlman]
- Non-Xtend soybean response to simulated dicamba drift. *Kansas Soybean Commission*. **\$32,893** [PI: D.E. Peterson; Co-PI: **V. Kumar**]
- Influence of rainfall on the timing and efficacy of PRE/POST soil residual herbicides for control of herbicide-resistant kochia and Palmer amaranth. *National Sunflower Association*. **\$13,000** (Co-PI: V. Kumar) Total amount: **\$32,500** [PIs: N. Lawrence (UNL), C. Creech (UNL), J. Spring (CSU), **V. Kumar** (KSU), J.F. Jones (KSU)]
- Influence of rainfall on the timing and efficacy of PRE/POST soil residual herbicides for control of herbicide-resistant kochia and Palmer amaranth. *Kansas Sunflower Association*. **\$5,000** [PI: **V. Kumar**, Co-PI: J.F. Jones]
- Effect of nozzle type, spray volume, and boom height on the drift of glyphosate plus dicamba mixture and its efficacy on Palmer amaranth and kochia control in Roundup Ready 2 Xtend soybeans. *Monsanto Company*. \$50,000 [PI: **V. Kumar**, Co-PI: D. E. Peterson]
- Private industry-sponsored research funds for herbicide trials. Multiple sources (Albaugh, BASF, Syngenta, Bayer Crop Science, Monsanto, DowDupont, Arysta, FMC, Gowan, Valent, ISK Bioscience, Winfield Solutions). **\$131,675** (PI: **V. Kumar**).
- In-kind gifts (Herbicides samples and crop seeds). *Monsanto Company*. **\$5,145** (PI: **V. Kumar**).

IV. TEACHING AND OUTREACH ACTIVITIES

Responsible for weed management-related teaching (outreach) to agricultural clientele of Kansas. No formal appointment for classroom instruction. No formal appointment in Kansas Cooperative Extension Service.

IV. A. Teaching and Mentoring***Courses Instructed (guest lectures and labs)***

- AGRI 621: Weed Science-Fall semester 2017, Fort Hays State University
- AGRI 621: Weed Science-Fall semester 2018, Fort Hays State University

Graduate Students

- Tyler Meyeres, M.S. student. Department of Agronomy. May 2018-present. *Co-advisor*. *Thesis title*: Effect of simulated dicamba drift on non-Xtend soybeans.
- Gurpreet Kaur, Ph.D. student. Agronomy department, Punjab Agricultural University, Punjab, India. Aug 2018-present. *External Committee Member*. *Dissertation title*: Molecular and biochemical basis of herbicide resistance in Phalaris minor and its management in wheat in a rice-wheat system.

- Ednaldo Borgato, Ph.D. student. May 2018-Sep 2018. *Co-advisor*.

Undergraduate Students/Summer Interns

- Ryan Engel. Undergraduate student. Fort Hays State University. September 2017–December 2017. *Project*: Evaluating PRE and POST applications of dicamba on dicamba-resistant kochia.
- Peyton Thorell. High school student from Hays, Kansas. May 2018–July 2018. *Project*: Weed control in agronomic crops of Kansas.
- Logan. High school student from Hays, Kansas. May 2018–July 2018. *Project*: Weed control in soybean and corn.
- Larae Boaldin. Undergraduate student. Fort Hays State University. August 2018-present. *Project*: Greenhouse research on weed biology/ecology.
- Cole Walters. Undergraduate student. Fort Hays State University. August 2018-present. *Project*: Field research on weed biology/ecology and management.

V. PROFESSIONAL SERVICE

- American Society of Agronomy (ASA); Member: 2010-present
 - i. **Associate Editor** for Agronomy Journal: since Sep 2017
 - ii. Reviewer for Agronomy Journal and Crop, Forage, and Turfgrass Management
- Weed Science Society of America (WSSA); Member: 2013-present
 - i. Committee Outstanding paper in Weed Technology journal: 2017-present
 - ii. Committee Outstanding paper in Weed Science journal: 2016-present
 - iii. Committee member of E8: Environmental aspects & weed management:2016-present
 - iv. Judge graduate students' poster competition at the 2018 WSSA annual meeting
- Western Society of Weed Science (WSWS); Member: 2012-present
 - i. Elected chair for “Agronomic Crops” session for 2019 WSWS annual meeting
 - ii. Appointed member of WSWS Herbicide Resistant Plants Committee: July 2018-present
 - iii. Judging for graduate students' oral competition at the 2018 WSWS annual meeting
- Northcentral Weed Science Society (NCWSS); Member: 2017-present
 - i. Committee member of distinguished achievement award: 2017-present
 - ii. Committee member of strategic planning: Mar 2018-present
 - iii. Elected vice-chair for “Physiology” session for 2018 NCWSS annual meeting
- Member of WERA-77 group for coordinating research and extension activities on managing invasive weeds in wheat-based cropping systems in western U.S.
- Reviewer for various journals: Weed Science, Weed Technology, Pest Management Science, Crop Protection, Canadian Journal of Plant Science, International Journal of Pest Management, Agronomy Journal, Journal of Environmental Management, Crop, Forage and Turfgrass Management, PLoS ONE

Affiliations

- Weed Science Society of America (WSSA)

- Western Society of Weed Science (WSWS)
- North Central Weed Science Society (NCWSS)
- Canadian Weed Science Society (CWSS)
- American Society of Agronomy (ASA)

VI. HONORS AND AWARDS

1. **Elena Sanchez Memorial Outstanding Weed Science Student** for the Western Society of Weed Science at Portland, OR, USA (2015).
2. **First position in student poster contest** in the Western Society of Weed Science conference at Colorado Springs, CO, USA (2014).
3. **Second position in student oral presentation contest** in the Western Society of Weed Science conference at Colorado Springs, CO, USA (2014).
4. **Third position in A. K. Dobrenz Student Oral Presentation Competition** in Branch meeting of the Western Society of Crop Science at Bozeman, MT, USA (2014).
5. Recipient of **Dr. S. S. Labh Singh gold medal for the first position** in Bachelor of Science in agronomy at Punjab Agricultural University, India (2009).
6. **University Merit Scholarship in three out of four years** (For getting overall credit point average > 8.00 out of 10.00) at Punjab Agricultural University, India.