J. Paulo Flores
Curriculum Vitae

I. Personal Data

J. Paulo Flores
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II. Education

Federal University of Rio Grande do Sul	Porto Alegre, Brazil	Soil Science, PhD, 2008
Federal University of Rio Grande do Sul	Porto Alegre, Brazil	Soil Science, M.S., 2004
Federal University of Santa Maria	Santa Maria, Brazil	Agronomy, B.S., 2002

Other

University of Illinois at Urbana-Champaign, Exchange PhD Program, 8/2006-07/2007.

III. Experience

Assistant Professor – Department of Agricultural and Biosystems Engineering. North Dakota State University. Jan./2019-present.

Precision Agriculture Specialist – NDSU Carrington Research Extension Center. North Dakota State University. Dec/2016-Jan/2019.

Nutrient Management Specialist – NDSU Carrington Research Extension Center. North Dakota State University. Jan/2014-Dec/2016.

Project Researcher/Lab and Field Assistant - Dr. Benjamin F. Tracy's laboratory. Crop & Soil, Environmental Science Department. Virginia Tech University. Project: Economic Pasture-Based Beef Systems for Appalachia. Jan/2013-Sept/2013.

Postdoctoral Associate - Dr. Benjamin F. Tracy's laboratory. Crop & Soil, Environmental Science Department. Virginia Tech University. Project: Economic Pasture-Based Beef Systems for Appalachia. Jan/2009-Jan/2013.

Graduate (PhD) Student Researcher - Dr. Ibanor Anghinoni's laboratory, Federal University of Rio Grande do Sul, RS, Brazil. Projects: (1) Dynamic of soil acidity correction in an integrated crop-livestock system. (2) Technology for management of soil, crops and animals in an integrated crop-livestock system under no-till. Mar/2004-Feb/2008.

Graduate (M.S.) Student Researcher - Dr. Ibanor Anghinoni's laboratory, Federal University of Rio Grande do Sul, RS, Brazil. Project: Dynamic of soil acidity correction in an integrated crop-livestock system. Mar/2002-Feb/2004.

Undergraduate Student Researcher - Dr. Danilo Rheinheimer dos Santos and Joao Kaminski's laboratories, at the Federal University of Santa Maria, RS, Brazil. Projects: Many projects related to soil fertility. Aug/1997-Feb/2002.

III.Grants

Funded

07/01/2020-06/30/2021 - North Dakota Corn Council. *Using UASs for site-specific weed management in corn*. $17,971. Role: PI.

08/01/2019-06/30/2021 – NDAES Graduate Research Assistantship Program – Precision Ag. *Using UASs for high throughput phenotyping on dry beans*. $37,201. Role: PI

08/01/2019-06/30/2021 – NDAES Graduate Research Assistantship Program – *Using UASs for site specific weed control in corn*. $37,201. Role: PI

08/01/2019-06/30/2021 – NDAES Graduate Research Assistantship Program – Precision Ag. *Combining harvester, in field protein data, equipment data, and UAS to map protein and oil variability on the landscape for selected crops and to improve crop management*. $37,201. Role: PI

08/01/2019-06/30/2021 – NDAES Graduate Research Assistantship Program – Precision Ag. Applications of UASs to collect physiological and phenological data from crops growing on small research plots. $37,201. Role: Co-PI.

04/01/2019-06/30/2020 - North Dakota Corn Utilization Council. *Using UASs for site-specific weed management in corn*. $20,526. Role: PI.

01/01/2019-12/31/2019. North Dakota Barley Council. *Optmizing barley quality across variable terrain*. $8,424. Role: Co-PI.

07/01/2018-06/30/2019 – NCR-SARE. *Whole system approach to integrated crop/livestock production to enhance soil health and profitability of cropping and livestock systems in the Northern Great Plains*. $199,995. Role: Co-PI ($12,666).

07/01/2018-06/30/2019 - North Dakota Wheat Commission. *Mapping in field wheat protein content using combine-mounted protein sensor and drone aerial imagery*. $10,000. Role: PI.

07/01/2018-06/30/2019 - North Dakota Corn Utilization Council. *Using UASs for site-specific weed management in corn*. $19,765. Role: PI.

07/01/2018-06/30/2019 - North Dakota Soybean Council. *Multi applications of dicamba on non-dicamba tolerant soybeans: impact on seed yield and quality, and the effectiveness of a UAS to assess dicamba damage*. $27,111. Role: PI.

07/01/2018-06/30/2019. North Dakota Soybean Council. *Determining rye safety to soybeans with soil moisture status*. $14,550. Role: Co-PI

04/16/2018-06/30/2019 – AmeriFlax. *Influence of harvest management strategies on flax yield and quality*. $8,660. Role: Co-PI ($3,410).

03/01/2018-02/28/2019 – North Dakota Agricultural Experiment Station. *Managing barley to improve quality and economics across variable terrain*. $68,015. Role: Co-PI ($4,550).

01/01/2018-12/31/2018. North Dakota Barley Council. *Optmizing barley quality across variable terrain*. $10,134.50. Role: Co-PI.

4/26/2017-06/30/2019 - Knorr Farms/ North American Coal/Great River Energy. *Impact of carbonated water on corn yield and soil CO2 flux*. $95,885. Role: PI.

04/01/2017-01/31/2018 – AmeriFlax. *Influence of harvest management strategies on flax yield and quality*. $8,300. Role: Co-PI ($3,410).

04/01/2017-12/21/2017 – North Dakota Corn Council. *Phantom 4 Pro Kit Mini Grant Application*. $2,895. Role: PI.

03/09/2016-03/01/2017 – ND Products Utilization Commission. *Assessment of distillers grains as sources of P and N*. $14,567. Role: Co-PI.

11/01/2015-03/31/2017 – North Dakota Agricultural Experiment Station. *Increasing UAV related research capacity at the Carrington REC*. $96,689. Role: PI ($65,196).

11/01/2015-05/31/2018 – North Dakota Department of Commerce. *Determining Crop Harvest Readiness Using an UAV and Thermal Infrared Sensors*. $62,291. Role: PI.

07/01/2015-06/30/2017, U.S. Environmental Protection Agency / North Dakota Department of Health. *North Dakota Discovery Farms – Phase II*. $140,000. Role: PI.

7/01/2015-06/30/2017 - North Dakota Corn Utilization Council. *Corn Production Optimization with Distiller's Grains as a Phosphorus Fertilizer Source*. $10,152. Role: Co-PI.

10/01/2015-09/30/2016. North Central Region Water Network. *Professional Development for Extension Professionals and Educators on Land Use and Management Practice to Enhance Water Quality*. $15,000. Role: Co-PI.

07/01/2015-12/31/2016 - North Dakota Corn Utilization Council. *Corn production optimization with distiller's grain.* $22,597. Role: Co-PI.

07/01/2010-09/30/2015 - U.S. Environmental Protection Agency / North Dakota Department of Health. *North Dakota Discovery Farms*. $685,900. Role: PI (inherited funds).

2012-2015 USDA, Natural Resources Conservation Service (*69-33A7-12-002*). "Managed Grazing for Improved Soil Health and Environmental Protection". $75,000. Role: Co-PI.

Not funded

03/01/2018-12/31/2019 – University of North Dakota UAS Grand Challenge. Mapping Groundwater Discharge inThree Eastern North Dakota Wetlands Using UAS-Based Thermal Imaging. $8,423. Role: Co-PI ($4,972).

11/15/2017-06/30/2019 - North Dakota Agricultural Experiment Station. *Using UASs to assess dicamba damage on soybean and for site-specific weed management in corn*. $62,959. Role: PI ($39,007).

07/01/2016-06/30/2018 – North Dakota Corn Council. *Availability of N from beef feedlot manure for corn production during a 3-year period*. $19,766. Role: PI.

07/01/2016-06/30/2018. - North Dakota Corn Council. *Condensed distillers solubles as N source for corn production – a 2-year availability study. $25,404*. Role: PI.

07/01/2015-06/30/2016 – North Dakota Wheat Commission. *Beef manure as a fertilizer – Nitrogen management strategies to increase protein content in wheat*. $9,948. Role: PI.

04/01/2015-06/30/2017. - North Dakota State Board of Agricultural Research and Education. *Condensed Distillers Soluble as Nitrogen Source for Wheat Production – A two year availability study*. $14,175. Role: PI.

07/01/2015-06/30/2016. - Minnesota Wheat Research and Promotion Council. *Manure as a source of nutrients for wheat in a 3-yr crop rotation: can we boost wheat protein content with small N applications at boot stage and anthesis?* $7,856. Role: PI.

IV. Teaching Experience

PAG 454 – Applications of Precision Agriculture – this a brand-new course that will be taught by the first time in the Spring of 2020. The course consists of two 50-min lectures plus a three 50-min lab session per week. I developed the syllabus in a way that the content flows from pre planting activities to post-harvest ones, where students will be learning about the machinery, main components, data being collected by each piece of equipment, how to visualize, interpret, and combine that data to make more informed management decisions.

PAG 455 – Big Data Management in Precision Ag (under development) – this course will **i**ntroduce students to big data concepts, approaches and tools that they can deploy on agricultural data to analyze, interpret, and make management decisions based upon the data analysis results.

PAG 475 – Precision Ag Systems – Capstone Course (under development) – The primary goal of the course will be to provide mentorship and assistance to precision ag students as they use their knowledge and skills, acquired throughout the program, to solve real world precision ag related issues.

Supervised Teaching Activity - Soil Chemistry (Undergraduate level), Soils, UFRGS, Brazil. Supervisor: Dr. Carlos Bissani. Semester I/2006.

Supervised Teaching Activity - Soil Fertility (Undergraduate level), Soils, UFRGS, Brazil. Supervisors: Dr. Clesio Gianello, Dr. Ibanor Anghinoni. Semester II/2004.

Mentoring: 5 graduate and 8 undergraduate students. Currently I advise 1 PhD student and 1 MS student.

VI. Ad Hoc Reviews – 30 manuscripts for journals in USA, Canada, and Brazil.

VII. Publications

Peer reviewed papers

1. ZHANG, Z., FLORES, J.P., IGATHINATHANE. Wheat lodging detection from uas imagery using machine learning algorithms. 2020. Remote Sensing (**Submitted**).
2. SUNOJ, S., IGATHINATHANE, C., **FLORES, J. P**., SIDHU, H., MONONO, E.,

WIESENBORN, D., SCHATZ, B., ARCHER, D., HENDRICKSON, J. Plant rows identification and cluster segmentation for stand-count from UAV images based on profile and geometry. 2019. Remote Sensing of Environment (**Submitted**).

3. TRACY, B. F., K. ALBRECHT, **J. FLORES**, M. HALL, A. ISLAM, G. JONES, W. LAMP, J. W. MACADAM, H. SKINNER, AND C. TEUTSCH. 2016. Evaluation of Alfalfa–Tall Fescue Mixtures across Multiple Environments. Crop Sci. 56:2026-2034. doi:10.2135/cropsci2015.09.0553
4.
5. TRACY, B. F., SCHLUETER, D. H. and **FLORES, J. P.** (2015), Conditions that favor clover establishment in permanent grass swards. Grassland Science, 61: 34 -40. doi: 10.1111/grs.12075.
6. BONIN, C., **FLORES, J.**, LAL, R., TRACY, B. Root Characteristics of Perennial Warm-Season Grasslands Managed for Grazing and Biomass Production. *Agronomy*, v.3, p.508-523, 2013.
7. **FLORES, J.P.C**, TRACY, B. Impacts of winter hay feeding on pasture soils and plants. Agriculture, Ecosystems & Environment, v.149, p.30 - 36, 2012.
8. CARASSAI, I.J., CARVALHO, P.C.F, CARDOSO, R.R., **FLORES, J.P.C**., ANGHINONI, I., NABINGER, C., FREITAS, F.K., MACARI, S., TREIN, C.R. Soil physical attributes under grazing intensities and methods with lambs on integrated crop-livestock systems. *Pesquisa Agropecuária Brasileira*, v.46, p.1284 - 1290, 2011. (In Portuguese with Abstract in English)
9. CONTE, O., **FLORES, J.P.C**., CASSOL, L.C., ANGHINONI, I., CARVALHO, P.C.F., LEVIEN, R., WESP, C.L. Evolution of soil physical attributes in an integrated crop-livestock system. *Pesquisa Agropecuária Brasileira*, v.46, p.1301 - 1309, 2011. (In Portuguese with Abstract in English)
10. CARVALHO, P.C.F., ANGHINONI, I., MORAES, A., SOUZA, E.D., SULC, R.M., LANG, C.R., **FLORES, J.P.C**., TERRA LOPES, M.L., SILVA, J.L.S., CONTE, O., WESP, C. L., LEVIEN, R., FONTANELI, R.S., BAYER, C. Managing grazing animals to achieve nutrient cycling and soil improvement in no-till integrated systems. *Nutrient Cycling in Agroecosystems*, v.88, p. 259 – 273, 2010.
11. COSTA, S.E.V.G.A., SOUZA, E.D., ANGHINONI, I., **FLORES, J.P.C.**, VIEIRA, F.C.B., MARTINS, A.P., FERREIRA, E.V.O. Patterns in phosphorus and corn root distribution and yield in long-term tillage systems with fertilizer application. *Soil & Tillage Research*, v.109, p.41 – 49, 2010.
12. COSTA, S.E.V.G.A., SOUZA, E.D., ANGHINONI, I., **FLORES, J.P.C.**, ANDRIGUETTI, M.H. Potassium and root distribution in soil and corn growth in long-term soil management and fertilization systems. *Revista Brasileira de Ciência do Solo*, v.33, p.1291 – 1301, 2009. (In Portuguese with Abstract in English)
13. COSTA, S.E.V.G.A., SOUZA, E.D., ANGHINONI, I., **FLORES, J.P.C.**, CAO, E.G., HOLZSCHUH, M.J. Phosphorus and root distribution and corn growth as related to long-term tillage systems and fertilizer placement. *Revista Brasileira de Ciência do Solo*, v.33, p.1291 – 1301, 2009. (In Portuguese with Abstract in English)
14. LOPES, M.L.T., CARVALHO, P.C.F., ANGHINONI, I., SANTOS, D.T., AGUINAGA, A.A.Q., **FLORES, J.P.C**., MORAES, A. Crop-livestock integration system: effect of oat and italian ryegrass sward height management on soybean yield. *Ciência Rural*, v.39, p.1499 – 1506, 2009. (In Portuguese with Abstract in English)
15. MAUGHAN, M. W., **FLORES, J.P.C.**, ANGHINONI, I., BOLLERO, G., FERNANDEZ, F. G., TRACY, B. F. Soil Quality and Corn Yield under Crop-Livestock Integration in Illinois. *Agronomy Journal*, v.101, p.1503 – 1510, 2009.
16. **FLORES, J.P.C.**, CASSOL, L.C., ANGHINONI, I., CARVALHO, P.C.F. Chemical attributes of an oxisol under no-tillage submitted to surface liming and distinct grazing pressures in a crop-livestock integration system. *Revista Brasileira de Ciência do Solo*, v.32, p.2385 – 2396, 2008. (In Portuguese with Abstract in English)
17. LOPES, M.L.T., CARVALHO, P.C.F., ANGHINONI, I., SANTOS, D.T., KUSS, F., FREITAS, F.K., **FLORES, J.P.C.** Crop-livestock integration system: performance and carcass quality of

superprecoce beef steers finished in oat and ryegrass pasture managed under different heights. *Ciência Rural*, v.38, p.178 – 184, 2008. (In Portuguese with Abstract in English)

18. **FLORES, J.P.C.**, ANGHINONI, I., CASSOL, L.C., CARVALHO, P.C.F., LEITE, J.G.D.B., FRAGA, T.I. Soil physical attributes and soybean yield in na integrated livestock-crop system with different pasture heights in no-tillage. *Revista Brasileira de Ciência do Solo,* 31*:* 771-780, 2007. (In Portuguese with Abstract in English)
19. GATIBONI, L.C., KAMINSKI, J., RHEINHEIMER, D.S., **FLORES, J.P.C.** Bioavailability of soil phosphorus forms in no-tillage. *Revista Brasileira de Ciência do Solo,* 31:691-699, 2007. (In Portuguese with Abstract in English)
20. BANDINELLI, D.G., GATIBONI, L.C., TRINDADE, J.P.P.T, QUADROS, F.L.F., KAMINSKI, J., **FLORES, J.P.C.**, BRUNETTO, G., SAGGIN, A. Botanical composition of natural pasture as afected by phosphorus sources, lime and introduction of winter forage species. *Ciência Rural* 35: 84-91, 2005. (In Portuguese with Abstract in English)
21. GATIBONI, L.C., SAGGIN, A., BRUNETTO, G., HORN, D., **FLORES, J.P.C.**, RHEINHEIMER, D.S., KAMINSKI, J. Changes in properties of a sandy soil under no tillage by surface liming. *Ciência Rural* 33: 283-290, 2003. (In Portuguese with Abstract in English)
22. GATIBONI, L.C., KAMINSKI, J., PELLEGRINI, J. B. R., BRUNETTO, G., SAGGIN, A., **FLORES, J.P.C.** Influence of phosphorus fertilization and introduction of winter forage species on forage offer from natural pasture. *Pesquisa Agropecuaria Brasileira* 35: 1663-1668, 2000. (In Portuguese with Abstract in English)

Book Chapters

1. CARVALHO, P.C.F., ANGHINONI, I., MORAES, A., TREIN, C.R., **FLORES, J.P.C.**, CEPIK, C.T.C, LEVIEN, R., LOPES, M.T., BAGGIO, C., LANG, C.R., MARK, S.R., PELISSARI, A.. 2005. The art state in crop-livestock integration. In: Animal production: myths, research and techonology adoption, edited by Carlos Santos Gottschall; Jamir Luís Silva da Silva; Norma Centeno Rodrigues. 1: 7-44. Canoas (*In Portuguese*)

2. CARVALHO, P.C.F., MORAES, A., ANGHINONI, I., AGUINAGA, A.A.Q., CASSOL, L.C., **FLORES, J.P.C.**, SILVA, J.L.S., ALVES, S.J., PELISSARI, A.. 2004. Crop-livestock integration: how to increase the profitability, optmize the land use and minimize the risks. In: II Simposyum of bovine meat: Crop-Livestock Integration, edited by Harold Ospina Patino; Maria Helena Guerra Bernada; Fábio Schuler Medeiros. 1: 6-36. Dom Pedrito (*In Portuguese*)

Abstracts and Posters at Conferences and Field Days

A total of 37 abstracts published in USA (16) and Brazil (21) in collaboration with several researchers in both countries.

Technical Bulletin

RHEINHEIMER, D.S., GATIBONI, L.C., KAMINSKI, J., ROBAINA, A., ANGHINONI, I., **FLORES, J.P.C.**, HORN, D. 2001. *Evaluation of soil fertility in Rio Grande do Sul State.* p. 42. Santa Maria. (*In Portuguese*)

VIII. Professional Affiliations

Society	Period
International Society of Precision Agriculture	2019-present
American Society of Agronomy	2013-present
Crop Science Society of America	2013-2015
Soil Science Society of America	2009-2015
Brazilian Soil Science Society	2006-2008

IX. Other Languages

Portuguese (Brazil): Native Speaker

X. Software Skills

- Windows
- Microsoft Office
- ArcGIS
- Python for ArcGIS
- Pix4D
- Surfer
- Mission Planner
- Drone flight apps

XI. Invention Disclosure

Developing a nutrient tracking system for manure applicators. 09/19/2015. Disclosure made to NDSU Technology Transfer Office. NDSU decided not pursue protection or commercialization of the referred invention/discovery.

XII. Certifications

FAA Certified Sport Pilot. Certification Date 08/16/2016. Sport Airplane Single Engine.
FAA Certified UAS Remote Pilot. Certification Date 09/23/2016.

XIII. Others

2019 – Served NSF (National Science Foundation) on a review panel.