

## **REFERENCES**

Abd El-Gawad, H. 1990. Application of factorial design of experiment to predict the chemical stability of ferrous fumarate and thiamine hydrochloride tablets. *Journal of Pharmaceutical Science* **5**:130p.

Abdelhamid, M. T., Selim, E. M. and EL- Ghamry, A. M. 2011. Integrated effects of bio and mineral fertilizers and humic substances on growth, yield and nutrient contents of fertigated cowpea (*Vigna unguiculata* L.) grown on sandy soils. *Journal of Agronomy* **10**:34-39.

Abraham, C. T. and Singh, S. P. 1984. Weed management in sorghum-legume intercropping systems. *Journal of Agricultural Science* **103**:103–115.

Abraham, J. K., Corbin, J. D. and D'Antonio, C. M. 2009. California native and exotic perennial grasses differ in their response to soil nitrogen, exotic annual grass density, and order of emergence. *Plant of Ecology* **201**:445–456.

Agbede, T. M. 2010. Tillage and fertilizer effects on some soil properties, leaf nutrient concentrations, growth and sweet potato yield on an alfisol in Southwestern Nigeria. *Soil and Tillage Research* **110**:25-32.

Akman, M., Bhikharie, A.V., McLean, E.H., Boonman, A., Visser, E.J.W., Schranz, M.E., and van Tienderen, P.H. 2012. Wait or escape? Contrasting submergence tolerance strategies of *Rorippa amphibia*, *Rorippa sylvestris* and their hybrids. *Annals of Botany* **109**:1263–1276.

Al-Barrak, K. M. 2006. Irrigation interval and nitrogen level effects on growth and yield of canola (*Brassica napus* L.). *Scientific Journal of King Faisal University (Basic and Applied Sciences)* **7**:87-103.

Alderman, P. D., Boote, K. J., Sollenberger, L. E. and Coleman, S. W. 2011. Carbohydrate and nitrogen reserves relative to regrowth dynamics of 'Tifton 85' Bermuda grass as affected by nitrogen fertilization. *Soil Science Society American* **51**:1727-1738.

Aldrich, R. J. 1984. *Weed-Crop Ecology: Principles in Weed Management* Breton Publishers, Northern Scituate, 465p.

Aleric, K.M. and Kirkman, L. K. 2005. Growth and photosynthetic responses of the federally endangered shrub, *Lindera melissifolia* (Lauraceae), to varied light environments. *American Journal Botany* **92**:682-689.

Ali, M. Y., Ahmed, S., Johansen, C., Harris, D. and Kumar, R. J. 2004. Root traits of different crops under rain-fed conditions in the High Barind Tract, Bangladesh. *4th International Crop Science Congress*. Brisbane, Australia.

- Antonovics, J. and Levin, D. A. 1980. The Ecological and genetic consequences of density- dependent regulation in plants. *Annual Review Ecology Systematic Journal* **11**:411-452.
- Aphalo, P. J. and Ballare, C. L. 1995. On the importance of information acquiring systems in plant–plant interactions. *Functional Ecology* **9**:5–14.
- Arneodo, A., Argoul, F., Bacry, E., Elezgaray, J., Freysz, E., Grasseau, G., Muzy, J. F. and Poulligny, B. 1992. Wavelet transform of fractals : I. From the transition to chaos to fully developed turbulence. II. Optical wavelet transform of fractal growth phenomena. In: *Wavelets and Applications*, 286p.
- Asare, E. and Scarisbrick, D. H. 1995. Rate of nitrogen and sulphur fertilizers on yield, yield components and seed quality of oilseed rape (*Brassica napus* L.). *Field Crops Research* **44**:41-46.
- Aspinall, D. 1965. The effects of soil moisture stress on the growth of barley. Ii. Grain growth. *Australia Journal Agricultural Research* **16**:265–275.
- Aspinall, D., Nicholls, P. B. and May, L. H. 1964. The effects of soil moisture stress on the growth of barley. I. Vegetative development and grain yield. *Australia Journal Agricultural Research* **15**:729–745.
- Auclair, A. N. D., Bouchard, A. and Pajaczkowski, J. 1976a. Plant standing crop and productivity relations in a *Scirpus–Equisetum* wetland. *Ecology* **57**:941–52.
- Azhiri-Sigari, T., Yamauchi, A., Kamoshita, A. and Wade, L. J. 2000. Genotypic variation in response of rain-fed lowland rice to drought-would help to elucidate how rooting depth and deep root and rewatering. II. Root growth. *Plant Production Science* **3**:180-188.
- Azmi, M. 1994. The biology and control of *Echinochloa crus-galli* L. Beauv. in direct-seeded rice. Ph.D. thesis, University Sains Malaysia, 338p.
- Bailey-Serres, J. and Voisenek, L.A.C.J. 2008. Flooding stress: Acclimations and genetic diversity. *Annual Review Plant Biology* **95**:313-339.
- Baker, N. R. and Rosenqvist, E. 2004. Applications of chlorophyll fluorescence can improve crop production strategies: an examination of future possibilities. *Journal of Experimental Botany* **55**:1607-1621.
- Baki, B. B. 1986. The Population Biology of *Oxalis corniculata* L. Ph.D. thesis, University College of North Wales, U. K., 155p.
- Baki, B. B. 1988. The structural demography and growth patterns of *Scirpus grossus* l. *proc. National Seminar and Workshop on Rice Field Weed Management, Penang*, pp 299-314.

- Baki, B. B. 1992. Weed sciences in rice commodity research: Mediocrity versus necessity. *Paper presented at the Rice Research Division Seminar, 29 August 1992, MARDI, Bertam, 17p (mimeo).*
- Baki, B. B. 2004. Invasive weed species in Malaysia: Species, impacts and management. *Malaysian Journal of Science* **23**:1-23.
- Baki, B. B. 2005. Some approaches and challenges on millennial weed management in Malaysia. *Proc. 2<sup>nd</sup> Regional Symposium on Environment and Natural Resources (Kuala Lumpur). CD-version, pp.206-224.*
- Baki, B. B. 2006. *Weed Ecology of Management in Rice Ecosystems*. University of Malaya Press, Kuala Lumpur, 373p.
- Baki, B. B. and Azmi, M. 1992. Integrated management of paddy and aquatic weeds in Malaysia: Current status and prospects for improvement. In *Proc. Of the Symposium on Biological Control and Integrated Management of Paddy and Aquatic Weeds in Asia*. Tsukuba, Japan, pp. 103-160.
- Baki, H. B. 2007. Utilization of weeds and their relatives; malaysia perspective. In: *Utility of Weeds and Their Relatives as Resources*. (Kim K.U., Shin D.H., and Lee I. Jo, eds.). Kyungpook National University, Korea, pp.57-106.
- Baltazar, A. M., Johnson, D. E., Ismail, A., Janiya, J. D., Bariuan, J. T., Pena, J. T., Villalobos, M. C. and Merca, F. E. 2006. Control of sedges in rice : Wetland Purple Nutsedge. *Management of Sedge Weeds in Rice* pp.43-52.
- Barnes, D. E. 1990. *Common Weeds of Malaysia and Their Control*. Ancom Berhad, Kuala Lumpur Malaysia, 349p.
- Barney, J. N. and DiTomaso, J. M. 2008. Nonnative species and bioenergy: are we cultivating the next invader? *Bioscience* **58**:64–70.
- Barnsley, M. 1988. *Fractals everywhere*. Academic Press, New York, 94p.
- Bartoli, F., Philipp, R., Doirisse, M., Niquet, S. and Dubuit, M., 1991. Structure and self-similarity in silty and sandy soils: The fractal approach. *Journal Soil Science* **42**:167–185.
- Bashkin, M., Stohlgren, T. J., Otsuki, Y., Lee, M., Evangelista, P. and Belnap, J. 2003. Soil characteristics and plant exotic species invasions in the Grand Staircase – Escalante National Monument, Utah, USA. *Applied Soil Ecology* **22**:67–77.
- Bastiaans, L., Kropff, M. J., Kempuchetty, N., Rajan, A. and Migo, T. R. 1997. Can simulation models help design rice cultivars that are more competitive against weed? *Field Crop Research* **51**:101–111.

Bates, D. M. And Watts, D. G. 1988. *Nonlinear Regression Analysis and its Applications*. Wiley Online Library, NewYork.

Battie-Laclau, P. and Laclau, J. P. 2009. Growth of the whole root system for a plant crop of sugarcane under rainfed and irrigated environments in Brazil. *Field Crop Research* **114**:351–360.

Bayer, A. G. 1992. *Important Crops of the World and their Weeds (2nd)*. Bayer, A. G., Federal Republic of Germany, Leverkusen, pp. 1168-1169.

Baziramakenga, R. and Leroux, G. D. 1994. Critical period of quack grass (*Eltrygia repens*) removal in potatoes (*Solanum tuberosum*). *Weed Science* **42**:528-533.

Begum, M., Abdul, S. J., Azmi, M., Syed, O. S. R. and Amartalingam, R, 2008. Weed flora of different farm blocks in block-1 of muda rice granary in Peninsular Malaysia. *Tropical Life Sciences Research* **19**:33-43.

Bell, A. R. and Nalewaja, J. D. 1968. Competition of wild oat in wheat and barley. *Weed Science* **16**:505-508.

Berntson, G. M., Lynch, J. P. and Snapp, S. 1997. Fractal geometry and plant root systems: current perspectives and future applications. In: *Baveye, P., Parlange, Journal Y., Stewart, B.A. (eds.). Fractals in Soil Science*. Lewis Publishers, New York, pp.113–152.

Berntson, G. M.1994. Modeling root architecture: are there tradeoffs between efficiency and potential of resource capture? *New Phytologist* **127**:483–493.

Bhat, K. K. S. and Nye, P. H. 1974. Diffusion of phosphate to plant roots in soil. II. Uptake along the roots at different times and the effect of different levels of phosphorus. *Plant and Soil* **41**:365–382.

Biberdzic, M., Jelic, M., Deletic, N., Barac, S. and Stojkovic, S. 2011. The effect of fertilization system on weed infestation and grain yield of small grains on acid soils. *Research Journal Agricultural Science* **43**:3-8.

Blackshaw, R. E., O'Donovan, J. T. , Harker, K. N., Clayton, G. W. and Stougaard, R. N. 2006. Reduced herbicide doses in field crops: a review. *Weed Biology and Management* **6**:10–17.

Block, A., von Bloh, W. and Schellnhuber, H. J. 1990. Efficient box-counting determination of generalized fractal dimensions. *Physiology Review* **42**:1869–1874.

Blumenthal, D. M., Jordan, N. R. and Russelle, M. P. 2003. Soil carbon addition controls weeds and facilitates prairie restoration. *Ecological applications* **13**:605-615

- Boardman, N. K. 1977. Comparative photosynthesis of sun and shade plants. *Annual Review Plant Physiology* **28**:355-377.
- Boivin, J. R., Salifu, F. and Timmer, V. R. 2004. Late-season fertilization of *Picea mariana* seedlings: intensive loading and outplanting response on greenhouse bioassays. *Annals of Forest Science* **61**:737–745.
- Boland, J. M. 2006. The importance of layering in the rapid spread of *Arundo Donax* (Giant Reed). *Madrono* **53**:303–312.
- Bond, W. and Burston, S. 1996. Timing the removal of weeds from drilled salad onions to prevent crop losses. *Crop Protection* **15**:205-211.
- Bouttier, C. and Morgan, D. G. 1992. Ovule Development and Determination of Seed Number Per Pod in Oilseed Rape (*Brassica napus* L.) *Journal Experimental Botany* **43**:709-714.
- Bown, H. E., Mason, E. G., Clinton, P. W., Watt, M. S. 2009. Chlorophyll fluorescence response of *Pinus radiata* clones to nitrogen and phosphorus supply. *Ciencia e Investigación Agraria* **36**:451-464.
- Box, G. E. P. and Wilson, K. B. 1951. On the experimental attainment of optimum conditions (with discussion). *Journal of the Royal Statistical Society* **13**:1–45.
- Brian, D. I. 2001. Response surface experimental designs for Investigating interspecific competition. *Journal of Ecology* **82**:2696–2706.
- Brohi, A. R., Karaman, M. R., Aktas, A. and Savasli, E. 1998. Effect of nitrogen and phosphorus fertilization on the yield and nutrient status of rice crop grown on artificial siltation soil from the Kelkit River. *Turkish Journal of Agriculture and Forestry* **22**:585-592.
- Burrough, P. A. 1981. Fractal dimensions of landscapes and other environmental data. *Nature* **294**:241–243.
- Burrough, P. A. 1983. Multiscale sources of spatial variation in soil: I. Application of fractal concepts to nested levels of soil variations. *Journal Soil Science* **34**:577–597.
- Calvaruso C., N’Dira, V. and Turpault, M. P. 2011. Impact of common european tree species and douglas-fir (*pseudotsuga menziesii* [Mirb.] Franco) on the physicochemical properties of the rhizosphere. *Plant and Soil* **342**:469–480.
- Capers, R. S., Selsky, R., Bugbee, G. J. and White, J. C. 2007. Aquatic plant community invasibility and scale-dependent patterns in native and invasive species richness. *Ecology* **88**:3135-3143.

- Capon, B. 2010. *Botany for Gardeners*. Portland, London, p.178.
- Carl, N. 1874. *Verdrängung der pflanzenformen durch ihre mitbewerber*. Franz in Komm.
- Casanova, M. T. and Brock, M. A. 2000. How do depth, duration and frequency of flooding influence the establishment of wetland plant communities? *Plant Ecology* **147**:237-250.
- Chanya, M. and Jumroon, S. 2006. Cyperaceae weeds in the rice fields of Thailand. *Management of Sedge Weeds in Rice* pp.35-41.
- Charnov, E. L. 1991. Evolution of life history variation among female mammals. *Proc. of the National Academy of Sciences* **88**:1134–1137.
- Christina, M., Laclau, J. P., Gonçalves, J. L. M., Jourdan, C., Nouvellon, Y. and Bouillet, J. P. 2011. Almost symmetrical vertical growth rates above and below ground in one of the world's most productive forests. *Ecosphere* **2**:27p.
- Cieslak, M., Seleznyova, A.N. and Hanan, J. 2011. A functional-structural kiwifruit vine model integrating architecture, carbon dynamics and effects of the environment. *Annals of Botany* **107**:747–764.
- Cohen, S., Raveh, E., Li, Y., Grava, A. and Goldschmidt, E. E. 2005. Physiological responses of leaves, tree growth and fruit yield of grapefruit trees under reflective shade screens. *Scientia Horticulturae* **107**:25-35.
- Collet, C., Lof, M. and Pages, L. 2006. Root system development of oak seedlings analysed using an architectural model. Effects of competition with grass. *Plant and Soil*. **279**:367–383.
- Connolly, J. 1988. Experimental Methods In Plant Competition Research In Crop-Weed Systems. *Weed Research* **28**:431-436.
- Cook, C. D. K. and Johnson, M. P. 1968. Adaptation to heterogeneous environments I. Variations in heterophylly in *Ranunculus flammula* L. *Evolution* **22**:496–516.
- Corben, C. 2001. *ANABAT6 Bat Call Analysis Software (Version 6.3g)*. Retrieved from <http://www.titley.com.au/anabatsoftware.htm>
- Cousens, R. 1987. Modeling weed population in cereals. *Review Weed Science* **3**:93-112.
- Cousens, R. 1988. Misinterpretation of the results in weed research through inappropriate use of statistics. *Weed Research* **28**:281-289.

- Cousens, R. 1991. Aspects of the design and interpretation of competition (interference) experiments. *Weed Technology* **5**:664-673.
- Cousens, R., 1985. Aspects of the design and interpretation of competition (interference) experiments. *Weed Technology* **5**:664-673.
- Cousens, R., Peters, N. C. B. and Marshall, C. J. 1984. Models of yield loss-weed density relationship. *Annual Review Ecology Journal* **15**:367-374.
- Crawley, M. J. 1990. The population dynamics of plants. *Philosophical Transactions of the Royal Society of London* **330**:125-140.
- Damgaard, C. 1998. Plant competition experiments: testing hypotheses and estimating the probability of coexistence. *Ecology* **79**:1760-1767.
- Dan, J. P. and John, B. B. 1991. Weed-crop competition models and response-surface analysis of red rice competition in cultivated rice: a review. *Alliance of Crop, Soil, and Environmental Science Societies* **31**:1105-1110.
- Dannowski, M. and Block, A. 2005. Fractal geometry and root system structures of heterogeneous plant communities. *Plant and Soil* **272**:61.
- Darwin, C. 1859. *The Origin of Species*. First edition Murray, London.
- Dassanayake, M. D. 1983. *A Revised Handbook to The Flora of Ceylon*. Amerind Publishing, New Delhi, 476 p.
- Daughtry, C. S. T., Walthall C. L., Kim, M. S., Brown de Colstoun, E. and McMurtrey III J. E. 2000. Estimating corn leaf chlorophyll concentration from leaf and canopy reflectance. *Remote Sensing of Environ* **74**:229-239.
- Davies, K. F., Chesson, P., Harrison, S., Inouye, B. D., Melbourne, B. A. and Rice, K. J. 2005. Spatial heterogeneity explains the scale dependence of the native-exotic diversity relationship. *Ecology* **86**:1602-1610.
- Day, R. T., Keddy, P. A., McNeill, J. and Carleton, T. 1988. Fertility and disturbance gradients: a summary model for riverine marsh vegetation. *Ecology* **69**:1044-54.
- De Wit, C. T. 1960. On competition. *Versl. landbouwk. onderz.*, pp.66-68.
- Debabrata, P. and Kumar, S. R. 2011. Improvement of Photosynthesis by Sub1 QTL in Rice Under Submergence: Probed by Chlorophyll Fluorescence OJIP Transients. *Journal of Stress Physiology and Biochemistry* **7**:250-259.
- DeEll, J. R., Saad, F. and Khanizadeh, S. 1999. Factors influencing apple fruit firmness. Presented at the 42nd Annual IDFTA Conference, February 20-24, 1999, Hamilton, Ontario. *Horticultural Reviews* **23**:69-108.



- Deng, L., Senseman, S. A., Gentry, T. J., Zuberer, D. A., Weiss, T. L. and Devarenne, T. P. 2012. Effect of selected herbicides on growth and hydrocarbon content of *Botryococcus braunii* (Race B). *Industrial Crops and Products* **39**:154-161.
- Diebel, K. E. and Feret, P. P. 1993. Using fractal geometry to quantify loblolly pine seedling root system architecture. *South Journal of Applied* **17**:130–134.
- Diepenbrock, W. 2000. Yield analysis of winter oilseed rape (*Brassica napus* L.): a review. *Field Crops Research* **67**:35-49.
- Dou, W., Wang, H., Yang, X., Xing, W. and Liu, G. 2010. Effects of water depth and substrate type on growth dynamics and biomass allocation of *oryzarufipogon*. *Acta Ecologica Sinica* **30**:16–21.
- Doussan, C., Pagès, L. and Pierret, A. 2003. Soil exploration and resource acquisition by plant roots: an architectural and modelling point of view. *Agronomie* **23**:419-431.
- Doussan, C., Pierret, A., Garrigues, E., Pages, L. 2006. Water uptake by plant roots: ii-modelling of water transfer in the soil root-system with explicit account of flow within the root system—comparison with experiments. *Plant and Soil* **283**:99–117.
- Duda, G. P., Guerra, J. G. M., Monteiro, M. T., De-Polli, H. and Teixeira, M. G. 2003. Perennial herbaceous legumes as live soil mulches and their effects on C, N and P of the microbial biomass. *Scientia Agricola* **60**:139-147.
- Dunbabin, V. M., McDermott, S., Bengough, A. G. 2006. Up-scaling from rhizosphere to whole root system: Modelling the effects of phospholipid surfactants on water and nutrient uptake. *Plant and Soil* **283**:57–72.
- Dyer, A. R. 2003. Burning and grazing management in a california grassland: growth, mortality, and recruitment of *Nassella pulchra*. *Restoration Ecology* **11**:291-296.
- Ebrahimpour, M. 2007. Heavy metal concentrations (Cd, Cu and Pb) in five aquatic plant species in Tasik Chini, Malaysia. *Environmental Geology* **54**:689–698.
- Eckhart, V. M., Geber, M. A., Morris, W. A., Fabio, E. S., Tiffin, P. and Moeller, D. A. 2011. The geography of demography: long-term demographic studies and species distribution models reveal a species border limited by adaptation. *The American Naturalist* **174**:26-43.
- Eghball, B., Settimi, J. R., Maranville, J. W. and Parkhurst, A. M. 1993. Fractal analysis for morphological description of corn roots under nitrogen stress. *Agronomy Journal* **85**:287–289.
- Eshel, A. 1998. On The fractal dimensions of a root system. *Plant, Cell and Environment* **21**:247–251

- Esser, G. and Overdieck, D. 1991. *Modern Ecology: Basic and Applied Aspects*. Elsevier, Amsterdam, 773p.
- Falconer, K. J. 1994. The multifractal spectrum of statistically self-similar measures. *Journal of Theoretical Probability* **7**:681-702.
- Faravani, M. and Bakar, B. 2007. Effects of light on seed germination, growth pattern of straits rhododendron (*Melastoma malabathricum* L). *Journal Agricultural Biology Science* **2**:1-5.
- Faravani, M., Baki, B. and KHALIJAH, A. 2008. Assessment of Allelopathic potential of *Melastoma malabathricum* L. on *Radish raphanus sativus* L. and Barnyard grass (*Echinochloa crus-galli*). *Notulae Botanicae Horti Agrobotanici Cluj-Napoca* **36**:54-60.
- Feng, D., Lin, M., Jiang, C. and Liu, X. 1991. *Fuzzy Fractals: Theory and Application*. Central China University of Science and Technology Press, Wuhan, 116p.
- Filella, I. and Pinuelas, J. 1994. The red edge position and shape as indicators of plant chlorophyll content, biomass and hydric status. *Journal Remote Sensing* **15**:1459-1470.
- Firbank, L. G. and Watkinson, A. R. 1986. Modeling the population dynamics of an arable weed and its effects upon crop yield. *Journal of Applied Ecology* **23**:147-159.
- Fitter, A. H. 1987. An architectural approach to the comparative ecology of plant root systems. *New Phytologist* **106**:61-77.
- Fitter, A. H. 2002. Characteristics and functions of root systems. In: *Waisel, Y., Eshel, A., Kafkafi, U.P. (eds.), Plant Roots, the Hidden Half*. Marcel Dekker Inc., New York, pp.15-32.
- Fitter, A. H. and Stickland, T. R. 1992. Fractal characterization of root system architecture. *Functional Ecology* **6**:632-635.
- Floistad, I. S. and Kohmann, K. 2004. Influence of nutrient supply on spring frost hardiness and time of bud break in Norway spruce (*Picea abies* L.) seedlings. *New Forests* **27**:1-11.
- Folk, R. S. and Grossnickle, S. 2000. Stock-type patterns of phosphorus uptake, retranslocation, net photosynthesis and morphological development in interior spruce seedlings. *New Forester* **19**:27-49.
- Forbis, A. and Daniel, F. 2004. Seedling establishment and life history trade-offs in alpine plants. *American Journal Botany* **91**:1147-1153.
- Foth, H. D. 1991. *Fundamentals of Soil Science*: John Wiley and Sons, Inc. New York.

Fourcaud, T. and Zhang, X. P. 2008. Plant growth modeling and applications – *Proc. of PMA06*. Los Alamitos, CA: IEEE Computer Society.

Fourcaud, T., Zhang, X. P., Stokes, A., Lambers, H. and Korner, C. 2008. Plant growth modeling and applications: the increasing importance of plant architecture in growth models. *Annals of Botany* **101**:1053–1063.

Fracheboud, Y. and Leipner, J. 2003. In: *Practical Applications of Chlorophyll Fluorescence in Plant Biology*. (DeEll, J. R. and Toivonen, P. M. A. eds. Kluwer Academic Publishers, Dordrecht, pp.125-150.

Francisco, J. B., Ramon, M., Antonio, L. G., Angel, G. and Ignacio, P. 2011. Chlorophyll fluorescence and mineral nutrition in citrus leaves under salinity stress. *Journal Plant Nutrition* **34**:1579-1592.

Franco, M. and Silvertown, J. 1996. Life history variation in plants: an exploration of the fast–slow continuum hypothesis. *Philosophical Transactions of the Royal Society of London*. **351**:1341–1348.

Freckleton, R. P., Watkinson, A. R., Dowling, P. M. and Leys, A. R. 2000. Determinants of the abundance of invasive annual weeds: community structure and non–equilibrium dynamics. *Proc. of the Royal Society of London. Series B: Biological Sciences* **267**:1153-1161.

Friday, E., Alpha, Y. K., Sylvester, O. O., Lucky, O. O., Paul, A., Tahirou, A. and David, C. 2009. Response of upland rice cultivars to weed competition in the savannas of West Africa. *Crop Protection* **28**:90-96.

Fukao, T., Xu, K., Ronald, P. C., and Bailey-Serres, J. 2006. A variable cluster of ethylene response factor-like genes regulates metabolic and developmental acclimation responses to submergence in rice. *Plant Cell* **18**:2021–2034.

Ge, Z. Y., Rubio, G. and Lynch, J. P. 2000. The importance of root gravitropism for inter-root competition and phosphorus acquisition efficiency: results from a geometric simulation model. *Plant and Soil* **218**:159-171.

Genty, B., Briantais, J. M. and Baker, N. R. 1989. The relationship between the quantum yield of photosynthetic electron transport and quenching of chlorophyll fluorescence. *Biochimica et Biophysica Acta* **990**:87–92.

Ghersa, C. M., Benech-Arnold, R. L., Satorre, E. H. and Martínez-Ghersa, M. A. 2000. Advances in weed management strategies. *Field Crops Research* **67**:95-104.

Gibson, D., Connolly, J., Hartnett, D. and Weidenhamer, J. 2001. Designs for greenhouse studies of interactions between plants. *Journal of Ecology* **87**:1-16.

- Godin, C. and Sinoquet, H. 2005. Functional-structural plant modelling. *New Phytologist* **166**:705–708.
- Goetghebeur, P. and Simpson, D. A. 1991. Critical notes on *Actinoscirpus*, *Bolboschoenus*, *Isolepis*, *Phylloscirpus* and *Amphiscirpus* (cyperaceae). *Springer on behalf of Royal Botanic Gardens, Kew Kew Bulletin* **46**:169-178.
- Goldberg, D. E. and Scheiner, S. M. 1993. *ANOVA and ANCOVA: Field Competition Experiments. Design and Analysis of Ecological Experiments*. Chapman and Hall, New York, USA, pp.69-93.
- Gonzalez, H., Humberto, A. and Michael, R. G. 2008. Phase resetting, phase locking, and bistability in the periodically driven saline oscillator: experiment and model. *APS Journals Highlights***78**: 36217-36230.
- Gordon, D. R., Tancig, K. J., Onderdonk, D. A. and Gantz, C. A. 2011. Assessing the invasive potential of biofuel species proposed for florida and the united states using the Australian weed risk assessment. *Biomass Bioenergy* **35**:74–79.
- Grace, E. 1989. Property-liability insurer reserve errors: a theoretical and empirical analysis. *Journal of Risk and Insurance* **57**:28-46.
- Grace, J. B. and Tilman, D. 1990. *Perspectives on Plant Competition*. Academic Press, Inc., San Diego, 484p.
- Gray, W. M., Ostin, A., Sandberg, G., Romano, C. P. and Estelle, M. 1998. High temperature promotes auxin-mediated hypocotyl elongation in Arabidopsis. *Proc. of the National Academy of Science USA* **95**:7197-7202.
- Grindal, G., Ernstsens, A., Reid, J.B., Junttila, O., Lindgard, B. and Moe, R. 1998. Endogenous gibberellin al levels control thermo periodic stem elongation in *Pisum sativum*. *Physiologia Plantarum* **102**:523-531.
- Guidi, L. and Degl’Innocenti, E..2011. Imaging of chlorophyll a fluorescence: a tool to study abiotic stress in plants. *Abiotic Stress in Plants – Mechanisms and Adaptations*, pp.1-19.
- Gundale, M. J., Sutherland, S. and DeLuca, T. H. 2008. Fire, native species, and soil resource interactions regulate the spatio-temporal invasion pattern of *Bromus tectorum*. *Ecography* **31**:201–210.
- Gupta, A. K. 2011. *Actinoscirpus grossus*. In: *IUCN 2011. IUCN Red list of Threatened Species*. Version 2011.2.
- Haboudane, D., John, R., M., Tremblay, N., Pablo, J. Z. T. and Dextraze, L. 2002. Integrated narrow-band vegetation indices for prediction of crop chlorophyll content for application to precision agriculture. *Remote Sensing of Environment* **81**:416–426.

- Haeringen, C. J. v., West, J. S., Davis, F. J., Gilbert, A., Hadley, P., Pearson, S., Wheldon, A. E. and Henbest, R. G. C. 1998. The development of solid spectral filters for the regulation of plant growth. *Photochemical Photobiology* **67**:407-413.
- Hamayun, M., Klan, S. A., Klan, A. L., Shinwari, Z. K., Ahmad, N., Kim, Y. H. and Lee, I. J. 2011. Effect of foliar and soil application of nitrogen, phosphorus and potassium on some yield parameters of lentil. *Pakistan Journal Botany* **43**:391-396.
- Hamdan, P. 2006. Management of *Leptochloa chinensis* L. nees in Indonesia. *Management of Sedge Weeds in Rice* pp.101-112.
- Hamrick, J. L. and Lee, J. M. 1987. Effect of soil surface topography and litter cover on the germination, survival, and growth of musk thistle (*Carduus nutans*). *American Journal of Botany* **74**:451-457.
- Hanwen, N., Keith, M. and Restituta, P. R. 2004. Analysis of competition between wet-seeded rice and barnyardgrass (*Echinochloa crus-galli*) using a response–surface model. *Weed Science* **52**:142-146.
- Hara, T. 1994. Growth and competition in clonal plants-persistence of shoot populations and species diversity. *Folia Geobotanica* **29**:181-201.
- Hara, T., Van der Toorn, J. and Mook, J. H. 1993. Growth dynamics and size structure of shoots of phragmites australis, a clonal plant. *Journal of Ecology* **81**:47-60.
- Haraldsen, T. K., Andersen, U., Krogstad, T. and Sorheim, R. 2011. Liquid digestate from anaerobic treatment of source separated household waste as fertilizer for barley. *Waste Management Research*, pp.564 – 569.
- Harbinson, J., Genty, B. and Baker, N. R. 1990. The relationship between CO<sub>2</sub> assimilation and electron transport in leaves. *Photosynthesis Research* **25**:213–224.
- Harper, J. L. 1960. Controlling plant numbers. *The Biology of Weeds. In: Journal L. Harper* pp.119-132. *Blackwell Scientific Publication*, Oxford, pp.1-19.
- Harper, J. L. 1961. Approaches to the study of plant competition. Mechanisms in biological competition. *Symposium Society Experimental Biology*, pp.197-205.
- Harper, J. L. 1967. A Darwinian approach to plant ecology. *Journal of Ecology* **55**:247-270.
- Harper, J. L. 1978. The demography of plants with clonal growth. *Structure and functioning of plant populations Freyden, A. H. J. and Woldendorp, J. W. (eds.)* North-Holland Publications, pp.27-48.

- Harper, J. L. and Bell, A. D. 1979. The population biology of plants with clonal growth: I. The morphology and structural demography of *Carex arenaria*. *The Journal of Ecology* **71**:983-1008.
- Harper, J. L., 1977. *Population Biology of Plants*. Academic, Press, London, pp.237-305.
- Hartzler, B. 2012. Agronomy 317. *Principles of Weed Science*. In Iowa State University.
- Hatem, R., Aleksandra, S., David, S., Alaaddin, B. A., Elisabeth, G., Richard, B. and Yves, P. 2011. Uncoupling phosphate deficiency from its major effects on growth and transcriptome via *pho1* expression in arabidopsis. *The Plant Journal* **65**:557-570.
- Hattori, Y. 2009. The ethylene response factors SNORKEL1 and SNORKEL2 allow rice to adapt to deep water. *Nature* **460**:1026–1030.
- Hawkins, T. S., Gardiner, E. S. and Comer, G. S. 2009. Modeling the relationship between extractable chlorophyll and SPAD-502 readings for endangered plant species research. *Journal Nature Conservation* **17**:123–127.
- Heggie, L. and Halliday, K. J. 2005. The highs and lows of plant life: temperature and light interactions in development. *International Journal Development Biology* **49**:675-687.
- Helm, A. C., Nicholas, N. S., Zedaker, S. M. and Young, S. T. 1991. Maritime forests on Bull Island, Cape Romain, South Carolina. *Bulletin of the Torrey Botanical Club* pp.170-175.
- Heppell, S. S., Caswell, H. and Crowder, L.B. 2000. Life histories and elasticity patterns: perturbation analysis for species with minimal demographic data. *Ecology* **81**:654-665.
- Hewson, R. T. and Roberts, H. A. 1973. Some effect of weed competition on the growth of onions. *Journal of Horticultural Science* **48**: 51-57.
- Hill, N. M., Patriquin, D. G. and Vander-Kloet, S. P. 1989. Weed seed bank and vegetation at the beginning and end of the first cycle of a four-course crop rotation with minimal weed control. *Journal of Applied Ecology* **6**:233-246.
- Hinsinger, P. 1998. How do plant roots acquire mineral nutrients? Chemical processes involved in the rhizosphere. *Consultoria Agronomica* **64**:225–265.
- Hinsinger, P. 2001. Bioavailability of soil inorganic p in the rhizosphere as affected by root-induced chemical changes. *A Review Plant and Soil* **237**:173–195.

- Hinsinger, P., Bengough, A. G., Vetterlein, D., Young, I. M. 2009. Rhizosphere: biophysics, biogeochemistry and ecological relevance. *Plant and Soil* **321**:117–152.
- Hinsinger, P., Betencourt, E., Bernard, L., Brauman, A., Plassard, C., Shen, J., Tang, X. and Zhang, F. 2011. For two, sharing a scarce resource-soil phosphorus acquisition in the rhizosphere of intercropped species. *Plant Physiology* **10**:111-175.
- Hinsinger, P., Gobran, G. R., Gregory, P. J. and Wenzel, W. W. 2005. Rhizosphere geometry and heterogeneity arising from root-mediated physical and chemical processes. *New Phytologist* **168**:293–303.
- Hocking, P. J. and Mason, L. 1993. Accumulation, distribution and redistribution of dry matter and mineral nutrients in fruits of canola (*Oilseed rape*), and the effects of nitrogen fertilizer and windrowing. *Australia Journal Agricultural Research* **44**:1377-1388.
- Hol, W. H. G. 2010. The effect of nutrients on pyrrolizidine alkaloids in senecio plants and their interactions with herbivores and pathogens. *Phytochemistry Journal* **10**:119–126.
- Hong, W., Zhu, H., Potter, C. J., Barsh, G., Kurusu, M., Zinn, K. and Luo, L. 2009. Leucine-rich repeat transmembrane proteins instruct discrete dendrite targeting in an olfactory map. *Nature Neuroscience* **12**:1542-1550.
- Horn, H. S. 1978. Optimal tactics of reproduction and life history. In: *Behavioural Ecology*. Krebs, J. R. and Davies, N. B. (eds.). Sinauer Associates, Massachusetts, pp.411-429.
- Hsu, B. H. 1928 A systematical examination of Chinese tallow seeds and oil. *China Journal* **9**:244–251.
- Hu, B. G. and Jaeger, M. 2003. Plant growth modeling and applications - *Proc. of PMA03*. Beijing: Tsinghua University Press/Springer.
- Huang, W., Wang, Z., Huang, L., Lamb, D. W., Ma, Z., Zhang, J., Wang, J. and Zhao, C. 2010. Induced chlorophyll fluorescence measurements for detecting the nitrogen status of wheat (*Triticum aestivum* L.) canopies. *Precision Agriculture* **6**:143-156.
- Hussain, Z. and Khan, A. 2012. Response of maize and three perennial weeds to different combinations of macro-nutrients. *Pakistan Journal Weed Science Research* **18**:433-443.
- Hussner, A., Meyer, C. and Busch, J. 2009. The influence of water level and nutrient availability on growth and root system development of *Myriophyllum aquaticum*. *Weed Research* **49**:73–80.

Hutchinson, G. E. 1957. The multivariate niche. Cold. Sprin. Harbor. *Symposium Quantitative Biology* **22**:415-421.

Imsande, J. and Touraine, B. 1994. N demand and the regulation of nitrate uptake. *Plant Physiology* **105**:1-3.

Inouye, B. D. 1999. Estimating competition coefficients: strong competition among three species of frugivorous flies. *Oecologia* **120**:588-594.

Islam, M. A, Apostol, K. G., Jacobs, D. F. and Dumroese, R. K. 2009. Fall fertilization of *Pinus resinosa* seedlings: nutrient uptake, cold hardiness, and morphological development. *Annual Forester Science* **66**:704p.

Itoh, S. and Barber, S. A. 1983a. A numerical solution of whole plant nutrient uptake for soil-root systems with root hairs. *Plant and Soil* **70**:403–413.

Itoh, S. and Barber, S. A. 1983b. Phosphorus uptake by six plant species as related to root hairs. *Agronomic Journal* **75**:457–461.

IUCN, 2011. Guidelines for using the IUCN red list categories and criteria, Version 9.0 IUCN/SSC, Gland.

Izumi, Y., Kono, Y., Yamauchi, A. and Iijima, M. 1995. Analysis of time course changes in root-system morphology of rice in excised root culture. *Japanese Journal of Crop Science* **64**:636-643.

Jacob, W., Sharon, K. and Sharon W. 1998. Modeling the growth of individuals in plant populations: local density variation in a strand population of *Xanthium strumarium*. *American Journal Botany* **85**:1638–1645.

James, J. Z., Sara, G. B. and David, J. D. 2010. Fire and fertilization effects on the growth and spread of rhizome-transplanted giant cane (*Arundinaria gigantea*). *Society Ecology Restoration International* **18**:462–468.

Jamieson, G. S. and McKinney, R. S. 1938. Stillingia oil. *Journal of the American Oil Chemists Society* **15**:295-296.

Javaid, A. and Shah, M. B. M. 2010. Growth and yield response of wheat to em (*Effective microorganisms*) and parthenium green manure. *African Journal of Biotechnology* **23**:3373-3381.

Jelic, M., Ognjanovic, R., Lomovic, S. and Milivojevic, J. 1995. Promena nekih pokazatelja plodnosti zemljista tipa vertisol posle visegodisnje primene "Njival Ca". Zbornik radova sa Savetovanja "Popravka kiselih zemljista Srbije primenom kretnog dubriva "Njival Ca". *Porcine*, pp.138-145.



- Jinadasak, B. S. N., Werellagama, D. R. I. B., Mowjood, M. I. M. and Ngw, J. 2006. Constructed tropical wetlands with integrated submergent-emergent plants for sustainable water quality management. *Journal of environmental science and health. Part A, Toxic/Hazardous Substances and Environmental Engineering*, pp.1093-4529.
- Jo, I. S., Han, D. U., Cho, Y. J. and Lee, E. J. 2010. Effects of light, temperature, and water depth on growth of a rare aquatic plant, *Ranunculus kadzusensis*. *Journal of Plant Biology* **53**:88-93.
- Johannes, M. S. S., Lincoln, Z., Michael, D. D., Monica Ozores-Hampton, Guodong, L. and Pablo, T. 2013. Enhancing fertilizer efficiency in high input cropping systems in florida. *Sustainable Agriculture Reviews* **12**: 143-174.
- Jolliffe, P. A., Minjas, A. N. and Runeckles, V. C. 1984. A reinterpretation of yield relationships in replacement series experiments. *Journal of Applied Ecology* **21**:227-243.
- Jose, A. A., Pablo, S., Vidal, B., Jose, T., María del, C. C., Antonio, G. and Rafael, V. 2013. Enhanced wheat yield by biochar addition under different mineral fertilization levels. *Agronomy for Sustainable Development* **33**: 475-484.
- Juan, A. O., Jose, M. S. and Rafael, V. 2010. Fall fertilization of holm oak affects N and P dynamics, root growth potential, and post-planting phenology and growth. *Annual Forester Science* **68**:647-656.
- Jullien, A., Mathieu, A. and Allirand, J. M. 2011. Characterization of the interactions between architecture and source–sink relationships in winter oilseed rape (*Brassica napus*) using the green lab model. *Annals of Botany* **107**:765–779.
- Jung, J. I. and Lal, R. 2011. Impacts of nitrogen fertilization on biomass production of switchgrass (*Panicum Virgatum* L.) and changes in soil organic carbon in ohio. *Original Research Article Geoderma* **166**:145-152.
- Jungk, A. 2002. Dynamics of nutrient movement at the soil-root interface. In: *Plant roots: The Hidden Half*, 3rd edn.. Marcel Dekker, Inc., New York, USA, pp.587–616.
- Jungk, A. and Claassen, N. 1997. Ion diffusion in the soil–root system. *Advances in Agronomy Journal* **61**:53–110.
- Jungk, A. and Claassen, N. 1986. Availability of phosphate and potassium as the result of interactions between root and soil in the rhizosphere. *Journal of Plant Nutrition and Soil Science* **149**:411–427.
- Karim, M., Rezaul, S., Azmi, B. M. and Ismail, B. S. 2004. Weed problems and their managements in rice fields of Malaysia: an overview. *Weed Biology Management* **4**:177-186.

- Karl, T. R. 1986. Sensitivity of the palmer drought severity index and palmer's z-index to their calibration coefficients including potential evapotranspiration. *Journal Climate Applied Meteorology* **25**:77–86.
- Karlsson, M. G., Heins, R. D., Erwin, J. E., Berghage, R. D., Carlson, W. H. and Biernbaum, J. A. 1989. Temperature and photosynthetic photon flux influence chrysanthemum shoot development and flower initiation under short-day conditions. *Journal American. Society Horticultural Science* **114**:158-163.
- Kathiresan, R. M. and Bhowmik, P. C. 2006. Sedge control in rice in India. *Management of Sedge Weeds in Rice* pp.23-34.
- Keddy, P. A. 1981. Experimental demography of the sand dune annual *Cakile edentula*, growing along an environmental gradient in Nova Scotia. *Journal Ecology* **69**:415-430.
- Kerstin, S. L. 1994. Growth and survival after cotyledon removal in quercus robur seedlings, grown in different natural soil types. *Oikos* **69**:65-70.
- Ketipearachchi, K. W. and Tatsumi, J., 2000. Local fractal dimension and multifractal analysis of the root system of legumes. *Plant Production Science* **3**:287–295.
- Khan, F. W., Khan, K. and Malik, M. N. 1973. Vegetable tallow and stillingia oil from the fruits of *sapium sebiferum*, roxb. *Pakistan Journal of Forestry* **23**:257-266.
- Khattak, A. M. and Pearson, S. 2005. Light quality and temperature effects on antirrhinum growth and development. *Journals of Zhejiang University Science* **6**:119-124.
- Khuri, A. I. and Cornell, J. A. 1996. *Response Surfaces*, Second Edition. Dekker, New York, 510p.
- Kim, J. W, Zhang, C. Lee, T. Y. and Kim, D. S. 2013. Plant phenomics may help herbicide research and development. *Proc. 24<sup>th</sup> Asian Pacific Weed Science Society Conference, Bandung, Indonesia, (Baki, H. B., Denny, K. and Ssoekisman, T. eds.),* pp.289-293.
- Kim, K. U., Shin, D. H. and Lee I. J. 2007. Utility of weeds and their relatives as resources. *Kyungpook National University, Korea*, 7p.
- Klarizze, A. M. P. 2005. Mathematical analysis of root growth in gamma-irradiated cashew (*Anacardium occidentale* L.) and mangosteen (*Garcinia mangostana* L.) using fractals. *Nature and Science* **1**:59-64.
- Knake, E. L. and Slife, F. W. 1962. Competition of *Setaria faberii* with corn and soy beans. *Weeds* **10**:26-29.

- Kolb, A., Alpert, P., Enters, D. And Holzapfel, C. 2002. Patterns of invasion within a grassland community. *Journal Ecology* **90**:871–881.
- Kolo, M. G. M. and Froud-Williams, R. J. 1993. Competition between *Cirsium arvense* L scop and spring barley. *Proc. of the Brighton Crop Protection Conference – Weeds, Brighton, UK*, pp.637-638.
- Kostermans, A. J. G. H., Wirjahardja, S. and Dekker, R. J. 1987. Weeds of rice in Indonesia. *Balai Pustaka, Jakarta, Indonesia*, pp.24-565.
- Krall, J. P., Edwards, G. E. and Ku, M. S. B. 1991. Quantum yield of photosystem II and efficiency of CO<sub>2</sub> fixation in Flaveria (*Asteraceae*) species under varying light and CO<sub>2</sub>. *Australian Journal of Plant Physiology* **18**:369–383.
- Krause, G. H. and Weis, E. 1984. Chlorophyll fluorescence as a tool in plant physiology. II. Interpretation of fluorescence signals. *Photosynthetic Research* **5**:39- 57.
- Krause, G. H. and Weis, E. 1988. The photosynthetic apparatus and chlorophyll fluorescence. *Physiology Plant* **98**:3-11.
- Kropff, M. J. and Spitters, C. J. 1991. A simple model of crop loss by weed competition from early observation on relative leaf area of the weed. *Weed Science* **31**:97-105.
- Kropff, M. J., Lotz, L. A. P. and Weaver, S. E. 1993. *Practical applications. In: Modeling Crop-Weed Interactions. Kropff, M. and Van Laar, H. H.(eds)*. CAB International, Wallingford, pp.149-167.
- Kuldeep, S., Kapur, S. K., Sarin, Y. K. and Singh, K. 1993 Domestication of *Sapium sebiferum* under jammu conditions. *Indian Forester* **119**: 36–42.
- Kurosaki, T., Okamoto, I., Kurita, K. and Fujita, K. 2003. Rich Periphery, Poor Center: Myanmar's Rural Economy under Partial Transition to a Market Economy. *North-East Universities Development Consortium Conference, Japanese Economic Association Annual Meeting, Tokyo, October 17-19, 2003*, 54p.
- Lamont, B. 1972. The effect of soil nutrients on the production of proteoid roots by *Hakea* species. *Australian Journal of Botany* **20**:27–40.
- Landis, T. D. and Van Steenis, E. 2004. Macronutrients-phosphorus. In: *Dumroese, R. K. , Landis, T (eds)* Forest nursery notes. USDA Forest Service, R6-CP-TP-07-04, pp.6–14.
- Law, R. 1981. The dynamics of a colonizing population of *Poa annua*.. *Ecology* **62**:1267-1277.

- Law, R. and Watkinson, A. R. 1987. Response-surface analysis of two-species competition: an experiment on *Phleum arenarium* and *Vulpia fasciculata*. *Journal of Ecology* **75**:871-886.
- Le, B. J, Adamowicz, S. and Robin, P. 1998. Modelling plant nutrition of horticultural crops: a review. *Scientia Horticulturae* **74**:47–82.
- Leitner, D., Klepsch, S., Ptashnyk, M., Marchant, A., Kirk, G. J. D, Schnepf, A. and Roose, T. 2010b. A dynamic model of nutrient uptake by root hairs. *New Phytologist* **185**:792–802.
- Lemerle, D., Gill, G. S., Murphy, C. E., Walker, S. R. and Cousens, R. D. 2001. Genetic improvement and agronomy for enhanced wheat competitiveness with weeds. *Australian Journal of Agricultural Research* **52**:527–584.
- Levi, M. B., Giles, C. T., Steve, S., Kerry, M. and Ragan, M. C. 2011. Disturbance, resource pulses and invasion: short-term shifts in competitive effects, not growth responses, favour exotic annuals. *Journal of Applied Ecology* **48**:998–1006.
- Levin, S. A. and Paine, R. T. 1974. Disturbance, patch formation and community structure. *Proc. of the National Academy of Sciences* **71**:2744– 2747.
- Lewis, G. J. and Thurling, N. 1994. Growth, development, and yield of three oilseed Brassica species in a water-limited environment. *Australian Journal Experimental* **34**:93-103.
- Lewis, M. and Rees, D. C. 1985. Fractal surfaces of proteins. *Science* **230**:1163–1165.
- Li, B. G., Jaeger, M. and Guo. Y. 2010. Plant growth modeling, simulation, visualization and applications – *Proc. of PMA09. Los Alamitos, CA: IEEE Computer Society*.
- Li, B. L. 1986. Pansystems analysis: a new approach to ecosystem modelling. *Ecology Model* **32**:227–236.
- Li, B. L., Wu, Y. and Wu, J. 1992. Patchiness and patch dynamics: II. description and analysis. *Chinese Journal of Ecology* **11**:28–37.
- Liebman, M. and Davis, A. S. 2000. Integration of soil, crop, and weed management in low-external-input farming systems. *Weed Research* **40**:27-47.
- Lin, W. C., Chen, A. C. Tseng, C. J. and Huang, S. G. 1958. An investigation and study of Chinese tallow tree in Taiwan (*Sapium sebiferum*, Roxb.). *Bulletin of the Taiwan Forestry Research Institute* **57**:1–37.
- Lindenmayer, A. 1968. Mathematical models for cellular interaction in development. Parts I and II. *Journal of Theoretical Biology* **18**:280–315.

- Lockwood, J. L., Cassey, P. and Blackburn, T. 2005. The role of propagule pressure in explaining species invasions. *Trends in Ecology and Evolution* **20**:223-228.
- Lone, P. M. and Khan, N. A. 2007. The effects of rate and timing of N fertilizer on growth, photosynthesis, N accumulation and yield of mustard (*Brassica juncea*) subjected to defoliation. *Environmental and Experimental Botany* **60**:318-323.
- Lonsdale, W. M. 1990. The self-thinning rule dead or alive? *Journal of Ecology* **71**:1373-1388.
- Lonsdale, W. M. and Watkinson, A. R. 1983. Plant geometry and self-thinning. *Journal of Ecology* **71**:285-297.
- Lora, B. P., Dale, W. J. and Robert, S. N. 2011. Plant-induced changes in soil nutrient dynamics by native and invasive grass species. *Plant and Soil* **345**:365-374.
- Lubigan, R. T. and Moody, K. 1990. Competition between transplanted rice and *Ischaemum rugosum*. *Journal Plant Protection in the Tropics* **7**:147-153.
- Lynch, J. 1995. Root architecture and plant productivity. *Plant Physiology* **109**:7-13.
- Lynch, J. P. and van Beem, J. J. 1994. Growth and architecture of seedling roots of common bean genotypes. *Crop Science* **33**:1253-1257.
- Magrini-Bair, K. A., Czernik, S., Pilath, H. M., Evans, R. J., Pin Ching, M. and Leventhal, J. 2009. Biomass derived, carbon sequestering, designed fertilizers. *Annals of Environmental Science* **3**:217-225.
- Mahfuza, B., Abdul, S. J., Azmi, M., Syed, O. S. R. and Rajan, A. 2008. Weed flora of different farm blocks in block-1 of muda rice granary in Peninsular Malaysia. *Journal of Biosciences* **19**:33-43.
- Maļceva, M., Stramkale, V. and Vikmane, M. 2011. Physiological aspects of nitrogen fertilizer impact on Latvian origin *Cannabis sativa* L. *Proc. of 8th International Scientific and Practical Conference, Rēzeknes Augstskola, Rēzekne, RA Izdevniecība* **2**:305-314.
- Maltchik, L., Rolon, A. S. and Schott, P. 2007. Effects of hydrological variation on the aquatic plant community in a floodplain palustrine wetland of Southern Brazil. *Limnology* **8**:23-28.
- Mandal, K. G. and Sinha, A. C. 2004. Nutrient management effects on light interception, photosynthesis, growth, dry-matter production and yield of Indian Mustard (*Brassica juncea*). *Journal of Agronomy and Crop Science* **190**:119-129.
- Mandelbrot, B. B. 1983. *The fractal geometry of nature*. Henry Holt and Company, 468p.

- Mandelbrot, B. B. 1989. Fractal geometry: what is it, and what does it do? *Proc. the Royal Society* **423**:3–16.
- Mandelbrot, B. B. 1990. Negative fractal dimensions and multifractals. *Physics A* **163**:306–315.
- Mar, B. G., F., Xavier, P. and Johan, E. 2008. Life span correlates with population dynamics in perennial herbaceous plants. *American Journal Botany* **95**:258–262.
- Marambe, B. and Amarasinghe, L. 2002. Propanil-resistant barnyardgrass (*Echinochloa crus-galli* L. Beauv) in Sri Lanka: Seedling growth under different temperatures and control. *Weed Biology and Management* **2**:194-199.
- Marambe, B., Amarasinghe, L. and Senaratne, G. R. P. B. 1997. Propanil-resistant barnyardgrass (*Echinochloa crus-galli* L. Beauv) in Sri Lanka. *Proc. 16<sup>th</sup> Asian Pacific Weed Science Conf.* (ed. Rajan, A.). pp.222-224.
- Marchant, J. A. and Onyango, C. M. 2003. Comparison of a bayesian classifier with a multilayer feed-forward neural network using the example of plant/weed/soil discrimination. *Computers and Electronics in Agriculture* **39**:3-22.
- Marenco, R. A., Antezana-Vera, S. A. and Nascimento, H. C. S. 2009. Relationship between specific leaf area, leaf thickness, leaf water content and SPAD-502 readings in six Amazonian tree species. *Photosynthesis* **47**:184–190.
- Margitta, D. and Arthur, B. 2005. Fractal geometry and root system structures of heterogeneous plant communities. *Plant and Soil* **272**:61–76.
- Marshall, D. R. and Jain, S. K. 1969. Phenotypic plasticity of *Avena fatua* and *A. barbata*. *American Naturalist* **102**:457-467.
- Marshall, D. R. and Jain, S. K. 1969. Genetics polymorphism in natural populations of *Avona fatua* and *A. barbata*. *Nature* **221**:276-278.
- Masi, C. E. A. and Maranville, J. W. 1998. Evaluation of sorghum root branching using fractals. *Journal Agricultural Science* **131**:259–265.
- Matlaga, D. P., Schutte, B. J. and Davis, A. S. 2012. Age-dependent demographic rates of the bioenergy crop *Miscanthusx giganteus* in Illinois. *Invasive Plant Science and Management* **5**:238-248.
- Matulis, R. J., Mckeith, F. K., Sutherland, J. W. and Brewer, M. S. 1995. Sensory characteristics of frankfurters as affected by salt, fat, soy protein, and carrageenan. *Journal of food science* **60**:48-54.
- Maxwell, K. and Johnson, G. N. 2000. Chlorophyll fluorescence - a practical guide. *Journal of Experimental Botany* **51**:659-668.

- Mendham, N. J. and Salisbury, P. A. 1995. *Physiology: Crop Development, Growth and Yield*. CAB International, UK, Cambridge.
- Mengel, K. and Kirkby, E. V. 2004. *Principles of Plant Nutrition* Springer. Koyama, Tokyo III. 7:330.
- Miao, X., Heaton, J. S., Zheng, S., Charlet, D. A. and Liu, H. 2012. Applying tree-based ensemble algorithms to the classification of ecological zones using multi-temporal multi-source remote-sensing data. *International Journal of Remote Sensing* **33**:1823-1849.
- Millar, K. D. L., Ebbs, S. D., Gibson, D. J., Wood, A. J. and Young, B. G. 2011. Evaluation of physiological parameters for the prediction of seed yield and quality for soybean (*Glycine max*) plants grown in the presence of weed competition. *Plant Biosystems – I. Journal Dealing with all Aspects of Plant Biology* **145**:1-11.
- Miller, M. E., Belnap, J., Beatty, S. W. and Reynolds, R. L. 2006. Performance of *Bromus tectorum* L. in relation to soil properties, water additions, and chemical amendments in calcareous soils of southeastern Utah, USA. *Plant and Soil* **288**:1–18.
- Milne, B. T. 1988. Measuring the fractal geometry of landscapes. *Applied Mathematics and Computation* **27**:67–79.
- Ministry of Forestry and Range, 2007. ANOVA: factorial designs with a separate control. Biometrics Information Pamphlets 14p.
- Mitchell, T. M. 1997. *Machine Learning*. Boston, Mass.: WCB/McGraw–Hill. pp.191–196.
- Molla, S., Villar-Salvador, P., García-Fayos, P. and Penuelas, J. L. 2006. Physiological and transplanting performance of *Quercus ilex* L. (Holm oak) seedlings grown in nurseries with different winter conditions. *Forest Ecology and Management* **237**:218–226.
- Mommer, L., Wolters-Arts, M., Andersen, C., Visser, E. J. W., and Pedersen, O. 2007. Submergence-induced leaf acclimation in terrestrial species varying in flooding tolerance. *New Phytologist* **176**:337–345.
- Morgan, J. P. 1994. Soil impoverishment: a little-known technique holds promise for establishing prairie. *Restoration and Management Notes* **12**:55–56.
- Morita, H. 2006. Key for Identification of Cyperaceae Weeds in Paddy Fields in Asia. *Management of Sedge Weeds in Rice*, pp.1-12.
- Morrison, M. J., Stewart, D. W. and McVetty, P. B. E. 1992. Maximum area, expansion rate and duration of summer rape leaves. *Canadian Journal Plant Science* **72**:117-126.

Mortimer, A. M. 1976. Aspects of the seed population dynamics of *Dactylis glomerata* L. *Holcus lanatus* L. *Plantago lanceolata* L. and *Poa annua*. *Proc. 13<sup>th</sup> British Weed Control Conference* **2**:687-694.

Mortimer, A. M., 1983. On weed demography. In: *Recent Advances in Weed Research*. Fletcher, W.W (ed.) Commonwealth Agricultural Bureau, 340p.

Mucheru-Muna, M., Mugendi, D. N., Pypers, P., Mugwe, J. N., Kungu, J. B., Vanlauwe, B. and Merckx, R. 2013. Enhancing maize productivity and profitability using organic inputs and mineral fertilizer in central kenya small-hold farms. *Explanation Agriculture*, pp.1-20.

Murata, N. and Satoh, K. 1986. Absorption and fluorescence emission by intact cells, chloroplasts, and chlorophyll protein complexes. *Journal and Plants and Bacteria* **47**:37-59.

Murchie, E. H. and Lawson, T. 2013. Chlorophyll fluorescence analysis: a guide to good practice and understanding some new applications. *Journal of Experimental Botany* **64**:3983-3998.

Murchie, E. H., Pinto, M. and Horton, P. 2009. Agriculture and the new challenges for photosynthesis research. *New Phytologist* **181**: 532-552.

Myung, I. J. 2000. The importance of complexity in model selection. *Journal of Mathematical Psychology* **44**:190-204.

N. R. C. (National Research Council Committee on the Restoration of Aquatic Ecosystems) . 1992. Restoration of aquatic ecosystems: science, technology, and public policy. *National Academy Press, Washington, D.C., USA*.

Nabi, S. D. and Jog, J. P. 1999. Natural fiber polymer composites: a review. *Advances in polymer technology* **18**:351-363.

Nagai, K., Hattori, Y. and Ashikari, M. 2010. Stunt or elongate? Two opposite strategies by which rice adapts to floods. *Journal Plant Research* **123**:303–309.

Nanda, R., Bhargava, S. C. and Rawson, H. M. 1995. Effect of sowing date on rates of leaf appearance, final leaf numbers and areas in *Brassica campestris*, *B. juncea*, *B. napus* and *B. carinata*. *Field Crops Research* **42**:125-134.

Nasrullahzadeh, S., Ghassemi-Golezani, K., Javanshir, A., Valizade, M. and Shakiba, M. R. 2007. Effects of shade stress on ground cover and grain yield of faba bean. *Journal of Food, Agriculture and Environment* **5**:337-340.

National Academy of Sciences. 1983 *Firewood Crops: Shrub and Tree Species for Energy Production*, Vol. 2. National Academy Press, Washington, D.C., USA.



- Nielsen, K. L., Lynch, J. P. and Weiss, H. N. 1997. Fractal geometry of bean root systems: correlations between spatial and fractal dimension. *American Journal of Botany* **84**:26–33.
- Nielsen, K. L., Miller, C. R., Beck, D. and Lynch, J. P. 1998. Fractal geometry of root systems: field observations of contrasting genotypes of common bean (*Phaseolus vulgaris* L.) grown under different phosphorus regimes. *Plant and Soil* **206**:181-190.
- Niu, G. Xu, W., Rodriguez, D. and Sun, Y. 2012. Growth and physiological responses of maize and sorghum genotypes to salt stress. *Agronomy* **2012**:1-12.
- Obert, M., Pfeifer, P. and Sernetz, M. 1990. Microbial growth patterns described by fractal geometry. *Bacteriology* **172**:1180–1185.
- Ognjanovic, R., Kostic, M., Dokic, D., Jelic, M. and Jelenkovic, R. 1994. Changes of certain soil properties after application of calcium fertilizer "Njival Ca" and cropping agricultural species. *Zemljiste i biljka* **43**:195-202.
- Olesen, J. E., Hansen, P. K., Berntsen, J. and Christensen, S. 2004. Simulation of above-ground suppression of competing species and competition tolerance in winter wheat varieties. *Field Crops Research* **89**:263–280.
- Oliet, J., Planelles, R., Artero, F. and Jacobs, D. 2005. Nursery fertilization and tree shelters affect long-term field response of *Acacia salicina* Lindl. planted in Mediterranean semiarid conditions. *Forest Ecology and Management* **215**:339–351.
- Oliet, J., Planelles, R., Artero, F., Valverde, R., Jacobs, D. and Segura, M. L. 2009a. Field performance of *Pinus halepensis* planted in Mediterranean arid conditions: relative influence of seedling morphology and mineral nutrition. *New Forests* **37**:313-331.
- Oliet, J., Tejada, M., Salifu, F., Collazos, A. and Jacobs, D. F. 2009b. Performance and nutrient dynamics of Holm oak (*Quercus ilex* L.) seedlings in relation to nursery nutrient loading and post-transplant fertility. *European Journal of Forest Research* **128**:253–263.
- Oliveira, G., Nunes, A., Clemente, A. and Correia, O. 2011. Effect of substrate treatments on survival and growth of mediterranean shrubs in a revegetated quarry: an eight-year study. *Ecological engineering* **37**:255-259.
- Osborne, S. L., Schepers, J. S., Francis, D. D. and Schlemmer, M. R. 2002. Use of spectral radiance to estimate in-season biomass and grain yield in nitrogen-and water-stressed corn. *Crop Science* **42**:165-171.
- Ozer, E. J., Best, S., Weiss, D. S. and Lipsey, T. 2003. Predictors of post-traumatic stress disorder in adults: A meta-analysis. *Psychological Bulletin* **129**:52-73.

- Packard, S., and Mutel, C. F. 1997. *Tallgrass Restoration Handbook*. Island Press, Washington, D.C., USA.
- Paine, R. T. and Levin, S. A. 1981. Intertidal landscapes: disturbance and the dynamics of pattern. *Ecological Monographs* **5**:145–178.
- Pallas, B., Loi, C., Christophe, A., Cournede, P. H. and Lecoeur, J. 2011. Comparison of three approaches to model grapevine organogenesis in conditions of fluctuating temperature, solar radiation and soil water content. *Annals of Botany* **107**:729–745.
- Pancho, J. V. 1995. *Manual of rice field weeds in the Philippines*. PhilRice, Munoz, Nueva Ecija, Philippines, pp.369-376.
- Panda, D. and Sharma, S. G. 2007. Chlorophyll fluorescence transient analysis and its association with submergence tolerance in rice (*Oryza sativa*). *Indian Journal of Agricultural Sciences* **77**:344-348.
- Pandey, N. and Sharma, C. P. 2002. Effect of heavy metals  $co_2+$ ,  $ni_2+$  and  $cd_2+$  on growth and metabolism of cabbage. *Plant Science* **163**:753-758.
- Pantone, D. J. and Baker, J. B. 1991. Weed-crop competition models and response-surface analysis of red rice competition in cultivated rice: A Review *Crop Science* **31**:1105-1110.
- Pasquini, S. C. and Santiago, L. S. 2011. Nutrients limit photosynthesis in seedlings of a lowland tropical forest tree species. *Oecologia* **10**:1-9.
- Patel, T. U., Patel, C. L., Patel, D. D., Thanki, J. D., Patel, P. S. and Jat, R. A. 2011. Effect of weed and fertilizer management on weed control and productivity of onion (*Allium cepa*). *Indian Journal of Agronomy* **56**:267- 272.
- Patterson, D. T. 1995. Effects of environmental stress on weed-crop interaction. *Weed Science* **43**:483-490.
- Paul, N. D. and Moore, J. P. 2006. Manipulation of light spectrum for crop growth regulation. *International Symposium on Artificial Lighting in Horticulture*, 711p.
- Pechan, P. A. and Morgan, D. G. 1985. Defoliation and its effects on pod and seed development in oil seed rape (*Brassica napus* l.). *Journal Experimental Botany* **36**:458-468.
- Perttunen, J., Sievanen, R., Nikinmaa, E., Salminen, H., Saarenmaa, H. and Vakeva, J. 1996. Lignum: a tree model based on simple structural units. *Annals of Botany* **77**:87–98.
- Peters, R. H. 1991. *A Critique For Ecology*: Cambridge University Press.

- Pettigrew, W. T. 1999. Potassium deficiency increases specific leaf weights and leaf glucose levels in field-grown cotton. *Agronomic Journal* **91**:962-968.
- Pfister, C. A. 1995. Estimating competition coefficients from census data: a test with field manipulations of tidepool fishes. *American Naturalist* **146**:271-291.
- Philip, R., Warman, A., Vernon, R. and Peter, H. 2011. The effect of msw compost and fertilizer on extractable soil elements, tuber yield, and elemental concentrations in the plant tissue of potato. *Potato Research* **54**:1-11.
- Pierik, R., Tholen, D., Poorter, H., Visser, E. J. W. and Voesenek, L. A. C. J. 2006. The Janus face of ethylene: Growth inhibition and stimulation. *Trends Plant Sciences* **11**:176-183.
- Pierik, R., van Aken, J. M., and Voesenek, L. A. C. J. 2009. Is elongation-induced leaf emergence beneficial for submerged Rumex species? *Annals of Botany* **103**:353-357.
- Pierret, J. S., Al-Belushi, M. E. and Deadman, M. 2007. Non-destructive visualization and quantification of roots using computed tomography. *Soil Biology and Biochemistry* **39**:391-399.
- Pietronero, L. 1989. Theoretical concepts for fractal growth. *Physical development* **38**:279-286.
- Pietronero, L. and Tosatti, E. 1986. *Fractals In Physics*. North-Holland, Amsterdam, 476p.
- Pinkard, E. A., Patel, V. and Mohammed, C. 2006. Chlorophyll and nitrogen determination for plantation-grown *Eucalyptus nitens* and *E.globulus* using a non-destructive meter. *Forest Ecology Management* **223**:211-217.
- Plaxton, W. C. and McManus, M. T. 2006. Control of primary metabolism in plants. *Annual Plant Review Blackwell Publishing, Ames*, 22p.
- Prusinkiewicz, P. and Lindenmayer, A. (with Hanan, J. S., Fracchia, F. D., Fowler, D. R., de Boer, M. J. M. and Mercer, L.) 1990. *The Algorithmic Beauty of Plants*. Springer, New York,
- Puértolas, J., Gil, L. and Pardos, J. A. 2003. Effects of nutritional status and seedling size on field performance of *Pinus halepensis* planted on former arable land in the Mediterranean basin. *Forestry* **76**:159-168.
- Qasem, J. R. 2009. Weed competition in cauliflower (*Brassica oleracea* L. var. *botrytis*) in the Jordan Valley. *Scientia Horticulturae* **121**:255-259.
- Qian, Q., He, P., Zheng, X.W., Chen, Y., Zhu, L. H. 2011. Genetic analysis of morphological and related taxonomic traits in rice. *Rice Genetics* **8**:67-68.

- Rabotnov, T. A. 1978. On coenopopulations of plants reproducing by seeds. In: *Structure and Function of Plant Population (Freysen, A. H. and Woldendorp. J. eds.)* North Holland Publication Company, Amsterdam, pp. 1-26.
- Rafique, E. and Rashid, A. 2006. Zinc deficiency in rainfed wheat in Pakistan: magnitude, spatial variability, management and plant. Analysis diagnostic norms. *Soil Science and Plant Analysis* **37**:181–197.
- Ralph, P. J. and Gademann, R. 2005. Rapid light curves: a powerful tool to assess photosynthetic activity. *Aquatic Botany* **82**:222–237.
- Razzaque, M. A., Talukder, M., Uddin, S., Khan, S. I. and Hossain, A. 2007. Response of late sowing on the yield and yield contributing character of different varieties of mustard and rapeseed in coastal area of Barguna. Bangladesh. *Journal of Scientific and Industrial Research* **42**:441-448.
- Reffye, P., Edelin, C., Francon, J., Jaeger, M. and Puech, C. 1988. Plant models faithful to botanical structure and development. *Computer Graphics* **22**:151–158.
- Richards, R. A. and Thurling, N. 1979. Genetic analysis of drought stress response in rapeseed (*Brassica campestris* and *B. Napus*). II. yield improvement and the application of selection indices. *Euphytica* **28**:169-177.
- Richardson, M. L. and Gillepsy, T. 2000. Fractal analysis of trabecular bone. <http://www.rad.washington.edu/exhibits/fractal.html> (21 September 2013).
- Richardson, S. M., Hanson, J. M. and Locke, A. 2002. Effects of impoundment and water-level fluctuations on macrophyte and macroinvertebrate communities of a dammed tidal river. *Aquatic Ecology* **36**:493-510.
- Ricklefs, R. E. and Wikelski, M. 2002. The physiology/life-history nexus. *Trends Ecology* **17**:462-468.
- Rikala, R., Heiskonen, J. and Lathy, M. 2004. Autumn fertilization in the nursery affects growth of *Picea abies* container seedlings after transplanting. *Scand Journal for Research* **19**:405–414.
- Rizzardi, M. A., Fleck, N. G., Vidal, A. R., Merotto, J. R. A. and Agostinetto, D. 2001. Competition between weeds and crops by soil resources. *Ciência Rural* **31**:707-714.
- Roberts, H. A. 1976. Weed competition in vegetable crops. *Annals of Applied Biology* **83**:321-324.
- Robertson, M. J., Asseng, J. A. K., Watkinson, A. R., Holland, N. W., Potter, W. B., Walton, G. H., Moot, D. J. and Farre, I. 2002. Environmental and genotypic control of time to flowering in canola and indian mustard. *Australia Journal Agricultural Research* **53**:793-809.

- Roostaei, M., Mohammadi, S. A., Amri, A., Majidi, E., Nachit, M. and Haghparast, R. 2011. Chlorophyll fluorescence parameters and drought tolerance in a mapping population of winter bread wheat in the highlands of Iran. *Russian Journal of Plant Physiology* **58**:351-358.
- Rosolem, C. A., Santos, F. P., Foloni, J. S. and Calonego, J. C. 2006. Soil potassium as affected by fertilization over the millet straw and simulated rain. *Pesquisa Agropecuária Brasileira, Brasilia* **41**:1033–1040.
- Roughgarden, J., May, R. M. and Levin, S. A., 1989. *Perspective in Ecological Theory*. Princeton University Press. Princeton, New Jersey, 394p.
- Rubio, G., Walk, T., Ge, Z. Y., Yan, X. L., Liao, H. and Lynch, J. P. 2001. Root gravitropism and below-ground competition among neighbouring plants: a modelling approach. *Annals of Botany* **88**:929-940.
- Russel, A. J. F., Doney, J. M. and Gunn, R. G. 1968. Subjective assessment of body fat in live sheep. *The Journal of Agricultural Science* **72**: 451-454.
- Ryan, M. R., Mortensen, D. A., Bastiaans, L., Teasdale, J. R., Mirsky, S. B., Curran, W. S., Seidel, R., Wilson, D. O. and Hepperly, P. R. 2010. Elucidating the apparent maize tolerance to weed competition in long-term organically managed systems. *Weed Research* **50**:2536p.
- Sabbatini, M. R., Murphy, K. J. and Irigoyen, J. H. 1998. Vegetation–environment relationships in irrigation channel systems of Southern Argentina. *Aquatic Botany* **60**:119-133.
- Sabine, G., Willem, K. and Jos, T. A. V. 2003. Biomass N:P ratios as indicators of nutrient limitation for plant populations in wetlands. *Ecological Applications* **13**:372–384.
- Sagar, G. R. 1974. On the ecology of weed control. In: *Biology of Pest and Disease Control*. Jones, D. P. and Solomon, M. E. (eds). Blackwell Scientific Publications Oxford, pp.42-56.
- Sagar, G. R. and Mortimer, A. M. 1976. An approach to the study of the population dynamics of plants with special reference to weeds In: *Coker, T. H. Y. (ed). Applied Biology* London, Academic Press, pp.1-47.
- Saleem, N., Rashid, M., AN, M. A. and Mahmood, T. 2000. Effect of NPK applications on the Seed Yield and oil content of three raya (*Brassica juncea* L.) cultivars. *Pakistan Journal Biology Science* **3**:358-359.

- Salifu, K. F., Apostol, K. G., Jacobs, D. F. and Islam, M. A. 2008. Growth, physiology, and nutrient retranslocation in nitrogen-15 fertilized. *Quercus rubra* seedlings. *Annual Forest Science* **65**:101p.
- Salvucci, M. E. and Bowes, G. 1982. Photosynthetic and photorespiratory responses of the aerial and submerged leaves of *Myriophyllum brasiliense*. *Aquatic Botany* **13**:147–164.
- Samorodnitsky, G. and Taqqu, M. S. 1994. *Stable Non-Gaussian Random Processes*. Chapman and Hall, New York, 632p.
- Santos, E. A., Ferreira, L. R., Costa, M. D., Santos, J. B., Silva, M. C. S. and Aspiazu, I. 2012. The effects of soil fumigation on the growth and mineral nutrition of weeds and crops. *Acta Scientiarum Agronomy* **34**:207-212.
- Sardans, J., Penuelas, J. and Roda, F. 2006a. Plasticity of leaf morphological traits, leaf nutrient content, and water capture in the Mediterranean evergreen oak *Quercus ilex* subsp. *Ballota* in response to fertilization and changes in competitive conditions. *Ecology of Science* **13**:258–270.
- Sarkar, N. and Chaudhuri, B. B. 1992. Texture segmentation using fractal dimension. *Pattern Analysis and Machine Intelligence. IEEE Transactions* **17**:72-77.
- Sarukhan, J. 1974. Studies on plant demography: ranunculus Repens, L. R., Lulbosus, L. R. and Acris, L. Reproductive strategies and seed population dynamics. *Journal Ecology* **62**:151-77.
- Saxena, K., Leonid, S. D., Peter L., Yngve C., Patrik, H., Michael H. and Jingzhu, H. 1996. Stability of perovskite (MgSiO<sub>3</sub>) in the Earth's mantle. *Science* **274**:1357-1357.
- Schenk, M. K. and Barber, S. A. 1979. Phosphate uptake by corn as affected by soil characteristics and root morphology. *Soil Science Society of America Journal* **43**:880-883.
- Schuster, J. 2008. *Focus on Plant Problems - Chlorosis*. University of Illinois. Retrieved.
- Serrano, L., Filella, I. and Penuelas, J. 2000. Remote sensing of biomass and yield of winter wheat under different nitrogen supplies. *Crop Science* **40**:723-730.
- Serres J. and Voesenek, L. A. C. J. 2008. Flooding stress: acclimations and genetic diversity. *Annual Review of Plant Biology* **59**:313–339.
- Setter, T. L. and Laureles, E. V. 1996. The beneficial effect of reduced elongation growth on submergence tolerance in rice. *Journal Experimental Botany* **47**:1551–1559.

- Shao-Wei, C. and Wu, C. F. J. 2001. Factor screening and response surface exploration. *Statistica Sinica* **11**:553-604.
- Shaw, D. R. 2005. Translation of remote sensing data into weed management decisions. *Weed Science* **53**:264-273.
- Sheng, Q. 2006. Sedge weeds and their shift influenced by herbicide application in paddy fields in the middle and lower reaches of the Yangtze river. *Management of Sedge Weeds in Rice* pp.65-75.
- Shuxia, J., Zhengquan, W., Xingpeng, L., Xiaoping, Z. and Neil, B. M. 2011. Effect of nitrogen fertilizer, root branch order and temperature on respiration and tissue n concentration of fine roots in *Larix gmelinii* and *Fraxinus mandshurica*. *Tree Physiology* **7**:718-726.
- Siebke, K., Von Caemmerer, S., Badger, M. and Furbank, R. T. 1997. Expressing an rbcS antisense gene in transgenic flaveria bidentis leads to an increased quantum requirement for CO<sub>2</sub> fixed in photosystems I and II. *Plant Physiology* **105**:1163–1174.
- Silla, F. and Escudero, A. 2003. Uptake, demand and internal cycling of nitrogen in saplings of *Mediterranean quercus* species. *Oecologia* **136**:28–36.
- Silva, E. V, Bouillet, J. P, Gonçalves, J. L. M., Abreu, Jr, C. H., Trivelin, P. C. O., Hinsinger, P., Jourdan, C., Nouvellon, Y., Stape, J. L. and Laclau, J. P. 2011. Functional specialization of eucalyptus fine roots: contrasted potential uptake rates for nitrogen, potassium and calcium tracers at varying soil depth. *Functional Ecology* **10**:1365-2435.
- Silva, P. and Nahas, E. 2002. Bacterial diversity in soil response to different plants, phosphate fertilizers and liming. *Brazilian Journal of Microbiology* **33**:304-310.
- Sindel, B. M. and Michael, P. W. 1992. Growth and competitiveness of *Senecio madagascariensis* Poir (fireweed) in relation to fertilizer use and increases in soil fertility. *Weed Research* **32**:399–406.
- Singh, A., Agrawal, S. B. and Rathore, D. 2005. Amelioration of Indian urban air pollution phytotoxicity in *Beta vulgaris* L. By modifying NPK nutrients. *Environmental Pollution* **134**:385–395.
- Smil, V. 2002. Nitrogen and food production: proteins for human diets. *Journal of the Human Environment* **31**:126-131.
- Smith, C. J., Wright, G. C. and Woodroffe, M. R. 1988. The effect of irrigation and nitrogen fertilizer on rapeseed (*Brassica napus*) production in South-Eastern Australia. *Irrigation Science* **9**:15-25.
- Snaydon, R. W. 1991. Replacement or additive design for competition studies. *Journal of Applied Ecology* **28**:930-946.

- Soerjani, M., Kostermans, A. J. G. H. and Tjitrosoepomo, G. 1987. Weeds of rice in Indonesia. Balai Pustaka, Jakarta. pp.310-311.
- Soh, K. L., Stephen, J., Muzzamil, N., Kah, Y. C., Yuen, M. C. and Weng, S. L. 2013. Enhancement of palm oil refinery waste – Spent bleaching earth (SBE) into bio organic fertilizer and their effects on crop biomass growth. *Industrial Crops and Products* **49**:775–781.
- Solbrig, O. T. and Solbrig, D. J. 1979. *Introduction to Population Biology and Evolution*. Addison-Wesley, Reading, Massachusetts.
- Sone, C. O. and Sakagami, J. I. 2012. Characterizing submergence survival strategy in rice via chlorophyll fluorescence. *Journal of Agronomy and Crop Science* **198**:152-160.
- Song, H. J., Jian, Q. H., Xue, Q. L., Bing, S. Z., Jia, S. W., Zheng, J. W., Gen, H. L. and Miao, C. 2011. Effects of potassium supply on limitations of photosynthesis by mesophyll diffusion conductance in *Carya cathayensis*. *Oxford Journal* **31**:1142-1151.
- Song, X. X., Zheng, C. S., Sun, X. and Ma, H. Y. 2011. Effects of controlled-release fertilizer on chrysanthemum leaf chlorophyll fluorescence characteristics and ornamental quality. *The Journal of Applied Ecology* **7**:1737-1742.
- South, D. B. and Donald, D. G. M. 2002. Effect of nursery conditioning treatments and fall fertilization on survival and early growth of *Pinus taeda* seedlings in Alabama, U.S.A. *Journal Forest Research* **32**:1171–1179.
- Spitter, C. J. T. and Herts, R. 1983. Simulation of competition for light and water in crop-weed associations. *Aspects Applied Biology* **6**:467-484.
- Starr, J. R., Bayer, R. J. and Ford, B. A. 1999. The phylogenetic position of *Carex* section *Phyllostachys* and its implications for phylogeny and subgeneric circumscription in *Carex* (Cyperaceae). *American Journal Botany* **86**:563–577.
- Stenoien, H. K., Fenster, C. B., Kuittinen, H. and Savolainen, O. 2002. Quantifying latitudinal clines to light responses in natural populations of *Arabidopsis thaliana* (Brassicaceae). *American Journal Botany* **89**:1604-1608.
- Sukatchew, W. N. 1928. *Plant Communities*. Nauk, Moscow, Russia.
- Sun, X. and Zhang, Q. 2011. Effects of water and fertilizer on the growth and quality of potted *Begonia xelator*. *Journal of Northwest A and F University (Natural Science Edition)* **3**:03.
- Sung, S. S., Black, C. C., Kormanik, T. L., Zarnoch, S. J., Kormanik, P. P., Counce, P.A. 1997. Fall nitrogen fertilization and the biology of *Pinus taeda* seedling development. *Journal Forester Research* **27**:1406–1412.



- Sytsma, M. D. and Anderson, L. W. J. 1993a. Transpiration by an emergent macrophyte: source of water and implications for nutrient supply. *Hydrobiologia* **271**:97–108.
- Syvertsen, J. P. and Smith, J. M. L. 1984. Light acclimation in citrus leaves. I. changes in physical characteristics, chlorophyll, and nitrogen content. *Journal American Society Horticultural Science* **109**:807-812.
- Tanaka, K. B. S. N., Jinadasa, D. R. I. B., Werellagama, M. I. M. and Mowjood, W. J. 2006. Constructed tropical wetlands with integrated submergent-emergent plants for sustainable water quality management. *Journal of Environmental Science and Health* **41**:2221-2236.
- Tang, L., Tian, L. and Steward, B. L. 2003. Classification of broadleaf and grass weeds using gabor wavelets and an artificial neural network. *Transactions-American Society of Agricultural Engineers* **46**:1247-1254.
- Tang, L., Tian, L. F., Steward, B. L. and Reid, J. F. 1999. Texture-based weed classification using gabor wavelets and neural network for real-time selective herbicide applications. *Urbana* **51**:1801-1814.
- Tatsumi, J. 1995. Fractal geometry in root systems: quantitative evaluation of distribution pattern. *Japan Journal Crop Science* **64**:50–57.
- Tatsumi, J. 2001. Fractal geometry of root system morphology: fractal dimension and multifractals. In: *Proc. 6th Symposium International Society Root Research, Nagoya, Japan*, pp.24–25.
- Tatsumi, J., Yamauchi, A. and Kono, Y. 1989. Fractal analysis of plant root systems. *Annals of Botany* **64**:499–503.
- Taufik, T. 2008. The use of *Ceratophyllum demersum* L. and *Scirpus grossus* L.F. as phytoremediators for chromium in textile waste water degree Sains (S.Si ). *Bandung Institute of Technology*.
- Taylor, S. J. 1986. The measure theory of random fractals. *Mathematical Proc. Cambridge Philosophical Society* **100**:383–406.
- Terradas, J. and Save, R. 1999. Holm oak and Holm oak forests: an introduction. In: *Roda, F., Retana, J., Gracia, C. and Bellot, J. (eds). Ecology of Mediterranean evergreen oak forests*. Ecological Studies. Springer, Berlin, pp.3–14.
- Terry, C. K., Lawrence, R. O., Hugh, R. C. and Ford, L. B. 1984. Potential use of response surface analyses for weed management in soybeans *Glycine max*. *Weed Science* **32**:552-557.

- Thingnaes, E., Torre, S., Ernstsén, A. and Moe, R. 2003. Day and night temperature responses in *Arabidopsis*: effects on gibberellin and auxin content, cell size, morphology and flowering time. *Annals of Botany* **92**:601-612.
- Tian, Y., Zhang, X., Liu, J. and Gao, L. 2011. Effects of summer cover crop and residue management on cucumber growth in intensive Chinese production systems: soil nutrients, microbial properties and nematodes. *Plant and Soil* **339**:299-315.
- Tilman, D. 1988. Plant strategies and the dynamics and structure of plant communities. *Monographs in Population Biology, Princeton University Press*, 360p.
- Tilman, D., Cassman, K. G., Matson, P. A., Naylor, R., Polasky, S. 2002. Agricultural sustainability and intensive production practices. *Nature* **418**:671-677.
- Timmer, V. R. and Aidelbaum, A. S. 1996. Manual for exponential nutrient loading of seedlings to improve out planting performance on competitive forest sites. *Natural Resources Canada, Canadian Forest Service, Ontario Region, Great Lakes Forestry Centre*, 21p.
- Timothy, W. S., Timothy, M. M., John, J. K. and Farrokh, M. 1998. Comparison of response surface and kriging models for multidisciplinary design optimization. *The Institute of Aeronautics American Institute of Aeronautics and Astronautics and Astronautics, Inc.* with permission.
- Tin, K. V., Williams, B. J., Stout, M. J., Geaghan, J. P., Leonard, B. R. and Webster, E. P. 2005. Yield components and quality of rice in response to graminaceous weed density and rice stink bug populations. *Crop Protection* **24**:991-998.
- Toosi, A., Fernando, R. L. and Dekkers, J. C. M. 2010. Genomic selection in admixed and crossbred populations. *Journal of animal science* **88**:32-46.
- Tripathy, B. C., Bhatia, B. and Mohanty, P. 1981. Inactivation of chloroplast photosynthetic electron-transport activity by Ni<sup>2+</sup>. *Biochimica et Biophysica Acta* **638**:217-224.
- Troy, C., Barrilleaux and James, B., Grace, 2000. Growth and invasive potential of *Sapium sebiferum* (*Euphorbiaceae*) within the coastal prairie region: the effects of soil and moisture regime. *American Journal Botany* **87**:1099-1106.
- Tse-Seng, C., Binti, M. M., Binti, M. Y., Nuraziah and Thye-San, C. 2006. Reduced rates of tank mixtures for red sprangletop (*Leptochloa chinensis* L. Nees) and greater club-rush (*Scirpus grossus* L. F.) control in rice. *Weed Biology and Management* **6**:245-249.
- Turcotte, D. L. 1997. *Fractals and Chaos in Geology And Geophysics*: Cambridge University press.

- Turkington, R. and Jolliffe, P. 1996. Interference in *Trifolium repens* and *Lolium perenne* mixtures: short- and long-term relationship. *Journal of Ecology* **84**:563-571.
- Turner, M. D. and Rabinowitz, D. R. 1983. Factors affecting frequency distributions of plant main: the absence of dominance and suppression in competing monocultures of *Festuca paradoxa*. *Journal of Ecology* **64**:409-475.
- Tyler, S. W. and Wheatcraft, S. W. 1990. Fractal processes in soil water retention. *Water Resources Research* **26**:1047-1054.
- Uddling, J., Gelang-Alfredsson, J., Piikki, K. and Pleijel, H. 2007. Evaluating the relationship between leaf chlorophyll concentration and SPAD-502 chlorophyll meter readings. *Photosynthesis Research* **91**:37-46.
- Van der Valk, R., Webers, C. A. B., Schouten, J., Zeegers, M. P., Hendrikse, F. and Prins, M. H. 2005. Intraocular pressure? Lowering effects of all commonly used glaucoma drugs. *Ophthalmology Books* **112**:1177-1185.
- Van Kooten, O. and Snell, J. E. H. 1990. The use of chlorophyll fluorescence nomenclature in plant stress physiology. *Photosynthesis Research* **25**:147-50.
- Van Veen, J. A., Hannula, S. E., De Boer, W. and Baldrian, P. 2013. Effect of genetic modification of potato starch on decomposition of leaves and tubers and on fungal decomposer communities. *Soil Biology and Biochemistry* **58**:88-98.
- Vercambre, G., Pages, L., Doussan, C., and Habib, R. 2003. Architectural and synthesis of the plumb tree root system in an orchard using a quantitative modelling approach. *Plant and Soil* **251**:1-11.
- Verma, M., Agrawal, M. and Deepak, S. S. 2000. Interactive effects of sulphur dioxide and mineral nutrient supply on photosynthetic characteristics and yield in four wheat cultivars. *Photosynthetica* **38**:91-96.
- Villar-Salvador, P., Planelles, R., Enriquez, E. and Penuelas, J. L. 2004. Nursery cultivation regimes, plant functional attributes, and field performance relationships in the mediterranean oak *Quercus ilex* L. *Ecology Management* **196**:257-266.
- Voesenek, L. A. C. J., Banga, M., Thier, R. H., Mudde, C. M., Harren, F. J. M., Barendse, G. W. M., and Blom, C. W. P. M. 1993a. Submergence-induced ethylene synthesis, entrapment, and growth in two plant species with contrasting flooding resistances. *Plant Physiology* **103**:783-791.
- Voesenek, L., Rijnders, J., Peeters, A. J. M., Vande, H. M. V. and De Kroon, H. 2004. Plant hormones regulate fast shoot elongation under water: from genes to communities. *Ecology* **85**:16-27.

- Voesenek, L.A.C.J., and Sasidharan, R. 2013. Ethylene—and oxygen signalling—drive plant survival during flooding. *Plant Biological* **15**:426–435.
- Vos, J., Evers, J. B., Buck-Sorlin, G. H., Andrieu, B., Chelle, M., Visser, P. H. B. 2010. Functional–structural plant modelling: a new versatile tool in crop science. *Journal Experimental Botany* **61**:2101–2115.
- Wade, L. J., Kamoshita, A., Yamauchi, A. and Azhiri-Sigari, T. 2000. Genotypic variation in response of rainfed lowland rice to drought and rewatering. I. growth and water use. *Plant Production Science* **3**:173–179.
- Walk, T. C., Van Erp, E. and Lynch, J. P. 2004. Modelling applicability of fractal analysis to efficiency of soil exploration by roots. *Annals of Botany* **94**:119–128.
- Waller, D. F. 1987. A re-evaluation of the  $-3/2$  power rule of plant self-thinning. *Ecology Monograph* **57**:33-43.
- Wang, T., Zhou, D., Wang, P. and Zhang, H. 2006. Size-dependent reproductive effort in *Amaranthus retroflexus*: the influence of planting density and sowing date. *Journal Botany* **84**:485–492.
- Watanabe, H. I., Zuki, M. and Ho, N. K. 1999. Herbicide resistant weeds. 2,4-Dresistant *Fimbritylis miliacea* L. Vahl. pp. 112-128 In Management of Biotic Agents in Direct-Seeded Rice Culture in Malaysia. Some experiences in the Muda Area. MARDI / MADA / JIRCAS Integrated Study Report 1992-1999.
- Waterhouse, D. F. 1993. The major arthropod pests an importance and origin. *Ecological Monograph* **21**:61-78.
- Watkinson, A. R. 1986. Plants population dynamics. in: *Plant Ecology and Management Journal Crawley*, (ed.) Blackwell Scientific Publications, Oxford, pp.137-184.
- Watkinson, A. R. and Harper, J. L. 1978. The demography of a sand dune annual: *Vulpia fasciculata*. I. The natural regulation of populations. *Journal of Ecology* **68**:15-33.
- Watkinson, D. H. 1975. Report of the petrology and mineralogy, Lac des Iles complex, north western Ontario. Internal Reported , Texas gulf Inc.
- Weiner, J. 1995. A neighbor-hood model of annual plant interference. *Journal of Ecology* **63**:1237-1241.
- Werner, P. A. 1975. A seed trap. for determining patterns of seed densities in terrestrial plants. *Canadian Journal of Botany* **53**:810-813.

- Wersal, R. M. and Madsen, J. D. 2011. Comparative effects of water level variations on growth characteristics of *Myriophyllum aquaticum*. *Weed Research* **51**:386-393.
- West, B. J. 1990. *Fractal Physiology and Chaos in Medicine*. World Scientific, Singapore, 278p.
- Westoby, M. and Howell, J. 1981. Self-thinning the effect of shading on glass house populations of silver beet (*Beta vulgaris*). *Journal of Ecology* **75**:343-359.
- White, H. 1984. Asymptotic theory for econometricians. Academic Press.
- White, J. and Harper, J. L. 1970. Correlated changes in plants size and number in plant populations. *Journal of Ecology* **58**:467-485.
- White, J. F. 1985. Interpretation of the coefficients in *Allometric equation*. *American Naturalist*, pp.5-18.
- Whitelam, G. C. and Halliday, K. J. 2007. Light and plant development: *Annual Plant Reviews* **30**:480-481.
- Willigen, P., Heinen, M., Mollier, A. and Van Noordwijk, M. 2002. Two-dimensional growth of a root system modelled as a diffusion process. I. Analytical solutions. *Plant and Soil* **240**:225-234.
- Wilson, B. J., Wright, K. J., Brain, P., Clements, M. and Stephens, E. 1995. Predicting the competitive effects of weed and crop density on weed biomass, weed seed production and crop yield in wheat. *Weed Research* **35**:265-278.
- Wong, K. K. and He, Y. 2013. Estimating grassland chlorophyll content using remote sensing data at leaf, canopy, and landscape scales. *Canadian Journal of Remote Sensing* **39**:155-166.
- Woolley, B. L., Michaels, T. E., Hall, M. R. and Swanton, C. J. 1993. The critical period of weed control in white bean (*Phaseolus vulgaris*). *Weed Science* **41**:180-184.
- Wu, L., Wen, Y., Deng, X., and Peng, H. 2009. Identification of weed/corn using bp network based on wavelet features and fractal dimension. *Scientific research and essay* **4**:1194-1200.
- Xu, K., Xu, X., Fukao, T., Canlas, P., Maghirang-Rodriguez, R., Heuer, S., Ismail, A. M., Bailey-Serres, J., Ronald, P. C. and Mackill, D. J. 2006. Sub1A is an ethylene-response-factor-like gene that confers submergence tolerance to rice. *Nature* **442**:705-708.
- Xu, L., Henke, M., Zhu, J., Kurth, W. and Buck-Sorlin, G. 2011. A functional-structural model of rice linking quantitative genetic information with morphological development and physiological processes. *Annals of Botany* **107**:817-828.

- Xu, Y., Yu, H. and Zhang, L. 2011. Effect of water-fertilizer coupling on yield of *Lactuca sativa* L. in greenhouse. *Northern Horticulture* **4**:03.
- Xu, Z. Z. and Zhou, G. S. 2006. Nitrogen metabolism and photosynthesis in *Leymus chinensis* in response to long-term soil drought. *Journal Plant Growth Regulation* **25**:252-266.
- Yamauchi, A., Pardales, J. R. J. and Kono, Y. 1996. Root system structure and its relation to stress tolerance. In: *Ito, O., Johansen, C., Adu-Gyamfi, J. J., Katayama, K., Kumar Rao, J. V. D. K. and Rego, T. J. (eds.), Dynamics of roots and nitrogen in cropping systems of the semi-arid tropics*. Japan International Research Center for Agricultural Sciences, Tsukuba, Japan, pp.211– 233.
- Yan, G., Thierry, F., Marc, J., Xiaopeng, Z. and Baoguo, L. 2011. Plant growth and architectural modelling and its applications. *Annals of Botany* **107**:723–727.
- Yanbo, J., Xiaoe, Y., Ejazul, I. and Ying, F. 2008. Effects of potassium deficiency on chloroplast ultrastructure and chlorophyll fluorescence in inefficient and efficient genotypes of rice. *Journal of Plant Nutrition* **31**:2105-2118.
- Yang, T., Davies, P. J. and Reid, J. B. 1996. Genetic dissection of the relative roles of auxin and gibberellin in the regulation of stem elongation in intact light-crown peas. *Plant Physiology* **110**:1029-1034.
- Yang, X. C. and Hwa, C. M. 2008. Genetic modification of plant architecture and variety improvement in rice. *Heredity* **101**:396–404.
- Yoda, K., Ogawa, H. and Hozumi, K. 1963. Intra-specific competition among higher plants. XI. Self-thinning in overcrowded pure stands under cultivated and natural conditions. *Journal Biology. Osaka City University* **14**:107-129.
- Young, I. M. and Crawford, J. W. 1991. The fractal structure of soil aggregates: its measurement and interpretation. *Journal Soil Science* **42**:187–192.
- Zar, J. H. 2006. *Biostatistical Analysis*. 5<sup>th</sup> Edition, Prentice Hall Inc., Englewood Cliffs, N.J.
- Zhao, Y., Dai, X., Blakwell, H. E., Schreiber, S. L. and Chory, J. 2003. SIR1, an upstream component in auxin signaling identified by chemical genetics. *Science* **301**:1107-1110.
- Zimdahl, R. L. 1988. The Concept and application of the critical weed-free period. In: *Weed Management in Agro-ecosystems Ecology Approaches Alteieri, M. A. and Liebman, M. (eds.)* CRC Press Inc. Boca Raton, Florida.