

## Fikret Isik, PhD

North Carolina State University  
Department of Forestry and Environmental Resources  
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### Education

| Institution                 | Major                          | Degree      | Year |
|-----------------------------|--------------------------------|-------------|------|
| Istanbul University, Turkey | Forestry                       | B.F.        | 1982 |
| Istanbul University, Turkey | Tree Breeding                  | M.S.        | 1986 |
| Oxford University, UK       | Statistics                     | Certificate | 1992 |
| Akdeniz University, Turkey  | Population/Quantative Genetics | Ph.D.       | 1998 |

Ph.D. Thesis: Genetic variation, inheritance and genetic gains in *Pinus brutia*, Co-advisors (Kani Isik (UC Berkeley), Zeki Kaya (Oregon State University)).

### Professional Experience

June 2009 - present: Research Associate Professor, North Carolina State University,  
2008 - Present: Statistics Liaison, College of Natural Resources, NCSU  
2008 - Present: Faculty member of the Institute for Advanced Analytics, NCSU  
2003 - 2008: Research Assistant Professor, North Carolina State University, Raleigh, NC  
2000 - 2002: Post-doctoral scientist, North Carolina State University, Raleigh, NC  
1999 - 2000: Visiting scholar, North Carolina State University, Raleigh, NC  
1989 - 2000: Principle Research Scientist, Ministry of Environment & Forestry, Turkey  
July-Aug. 1997: Sabbatical, Forestry Commission Northern Research Station, Edinburgh, UK  
Sep.-Dec. 1995: Sabbatical, New Zealand Forest Research Institute, Rotorua, NZ.

### Research Interests

- Quantitative Genetics
- Association genetics and marker aided selection in forest tree breeding
- Genetic and physiological basis of disease resistance of forest tree species
- Genetic variation in wood quality assessment methods
- Experimental designs and statistical analysis

### Awards

Honorary Associate Professor of Genetics, Higher Education Council of Turkey (2006)  
NATO-B1 post-doctoral fellowship (1999)  
IUFRO Scientists Assistant Grant (2000), XXI World Forestry Congress  
The British Council Scholarship (1997)

The British Council Scholarship (1992)  
TARP Project Research Grant, World Bank and Turkish Ministry of Forestry, 1995  
Scientific and Technical Research Council of Turkey Ph.D. Scholarship (1993)

### **Memberships in Professional Organizations**

Sigma Xi, the Scientific Research Society of America (since 2002)  
Society of American Foresters (since 2002)  
British Fellows Association, Ankara, Turkey (since 1993)  
The Nature Conservancy (since 2004)  
NC Academy of Sciences (since 2006)  
Turkish Chamber of Forest Engineers (since 1983)

### **Served as a referee for the following scientific journals**

|   |                                  |
|---|----------------------------------|
| <b>Tree Genetics &amp; Genomes,</b>       | 2005-present, 4 reviews to date  |
| <b>Theoretical Applied Genetics,</b>      | 2005-present, 1 review to date   |
| <b>Annals of Forest Science,</b>          | 2007-present, 3 reviews to date  |
| <b>Forest Science,</b>                    | 2000-present, 2 reviews to date  |
| <b>Canadian J of Forest Research,</b>     | 2002-present, 3 review to date   |
| <b>Forest Ecology and Management,</b>     | 2003-present, 1 review to date   |
| <b>Forest Economy and Policy,</b>         | 2003-present, 1 review to date   |
| <b>Southern J of Applied Forestry,</b>    | 2002-present, 4 reviews to date  |
| <b>Scandinavian J of Forest Research,</b> | 2002-present, 3 reviews to date  |
| <b>Silvae Genetica,</b>                   | 2002-present, 10 reviews to date |
| <b>Forest Genetics,</b>                   | 2002-present, 3 reviews to date  |
| <b>New Forests,</b>                       | 2001-present, 1 reviews to date  |
| <b>Tree Physiology,</b>                   | 2005-present, 2 review to date   |
| <b>New Phytologist,</b>                   | 2008-present, 1 review to date   |

**Associate Editor** (Genetics), Southern Journal of Applied Forestry (2007-present)

### **Publications in peer-reviewed journals (28 total)**

1. Eckard T., F. Isik, B. Bullock, B. Li. (in press). Rapid Screening for Wood Density in Loblolly Pine (*Pinus taeda* L.) Clones using the Resistograph. *Forest Science*.
2. Aspinwall, M., (in press). Prediction of whole-stem cellulose yield, lignin content, and wood density in juvenile and mature loblolly pine. *Southern J. Applied Forestry*.
3. Jin Xiong, F.Isik, R. Whetten, .McKeand. (in press). Genetic Variation of Stem Forking in Loblolly Pine. *Forest Science*.
4. Cumbie, P., F Isik, B. Li, Goldfarb (in review). Genetic Improvement of Sawtimber Quality in Loblolly Pine. *Forest science*.

5. Babita Bains, Fikret Isik, Ward Strong, Barry Jaquish, John A. McLean, and Yousry A. El-Kassaby . 2009. Genetic susceptibility of spruce to gall forming adelgids (Hemiptera: Adelgidae). *Can. J. Forest Research*.
6. Gräns, D., B. Hannrup, F. Isik, S-O Lundqvist, and S. McKeand. 2009. Genetic variation and relationships to growth traits for microfibril angle, wood density, and modulus of elasticity in a Norway spruce (*Picea abies*) clonal trial in southern Sweden. *Scandinavian J. For. Res.* 24: 494-503.
7. McKeand, S.E., B. Li, J.E. Grissom, **F. Isik**, and K.J.S. Jayawickrama. 2008. Genetic parameter estimates for growth traits from diallel tests of loblolly pine throughout the southeastern United States. *Silvae Genetica* 57(3):101-110.
8. Christian R. Mora, Laurence R. Schimleck, **Fikret Isik**, Jerry M. Mahon Jr., Alexander Clark III, and Richard F. Daniels. 2009. Relationships between acoustic variables and different measures of stiffness in standing *Pinus taeda* trees. *Canadian J. Forest Research.* 39:1421-1429.
9. Mora,C.R., Schimleck, L.R., **Isik. F.** 2008. Near infrared calibration models for the estimation of wood density in *Pinus taeda* using repeated sample measurements. *Journal of Near Infrared Spectroscopy*, 16 (6):517–528.
10. **Isik F.**, H. V. Amerson, R. W. Whetten, S. A. Garcia, B. Li, and S. E. McKeand. 2008. Resistance Assessments of Elite Loblolly Pine Families to Fusiform Rust Inocula in Greenhouse Testing. *Canadian J. Forest Research* 38:2687-2696.
11. **Isik, F.**, M. Gumpertz, B. Li, B. Goldfarb, and X. Sun. 2008. Analysis of cellulose microfibril angle using a linear mixed model in *Pinus taeda* clones. *Canadian J. Forest Research.* 38:1676-1689.
12. **Isik, F.**, B. Li, B. Goldfarb, S.E. McKeand. 2008. Prediction of wood density breeding values of *Pinus taeda* elite parents from unbalanced data: A method for adjustment of site and age effects using common checklots. *Annals of Forest Science.* 65: 406-413.
13. McKeand, S.E., B. Li, J.E. Grissom, **F. Isik**, and K.J.S. Jayawickrama. 2008. Genetic parameter estimates for growth traits from diallel tests of loblolly pine throughout the southeastern United States. *Silvae Genetica* 57(3):101-110.
14. Sherrill, J.R., T.J. Mullin, B.P. Bullock, S.E. McKeand, R.C. Purnell, M.L. Gumpertz, and **F. Isik**. An Evaluation of Selection for Volume Growth in Loblolly Pine. *Silvae Genetica* 57(1):22-28.
15. Lise, Y., Z. Kaya, **F. Isik.**, R. Sabuncu, I. Kandemir and S. Önde. 2007. The impact of over-exploitation on the genetic structure of Turkish red pine (*Pinus brutia* Ten.) populations determined by RAPD markers. *Silva Fennica* 41(2): 211–220.
16. Sykes, R., B. Li, **F. Isik**, J. Kadla and H.-m. Chang. 2006. Genetic variation and genotype by environment interactions of juvenile wood chemical properties in *Pinus taeda* L. *Annals of Forest Science* 63 (8):897-904.
17. **Isik, F.**, D.D. Boos, B. Li. 2005. The distribution of genetic parameter estimates and confidence intervals from small disconnected diallels. *Theoretical and Applied Genetics* 110: 1436-2243.

18. **Isik, F.**, B. Goldfarb, A. LeBude, B. Li, and S.E. McKeand. 2005. Predicted genetic gains and testing efficiency from two loblolly pine clonal trials. *Canadian J. Forest Research* 35: 1754-1766
19. Frampton J, and **F. Isik**. 2005. Genetic Improvement of Virginia Pine (*Pinus virginiana* Mill.) for Christmas Tree Production. *Forest Genetics* 11:137-147.
20. **Isik, F.**, B. Li, J. Frampton, and B. Goldfarb. 2004. Efficiency of Seedlings and Rooted Cuttings for Testing and Selection in *Pinus taeda*. *Forest Science* 50(1):44-53.
21. Xiang, B., B. Li and **F. Isik**. 2004. Time trend of genetic parameter estimates in growth traits of *Pinus Taeda* L. *Silvae Genetica* 52:114-121.
22. **Isik, F.** and F. Toplu. 2004. Variation in Juvenile Traits of Natural Black Poplar (*Populus nigra* L.) Clones in Southeast Turkey. *New Forests* 27 (2):175-187.
23. Sykes, R., **F. Isik**, B. Li, J. Kadla and H-m Chang. 2004. Genetic variation in physiochemical wood properties in loblolly pine (*Pinus taeda* L.). *TAPPI Journal* 2 (12): 3-8
24. **Isik, F.** and B. Li. 2003. Rapid Assessment of Wood Density of Live Trees Using the Resistograph for Selection in Tree Improvement Programs. *Canadian J. of Forest Research* 33: 2426-2435.
25. **Isik, F.**, B. Li, J. Frampton. 2003. Estimates of Additive, Dominance and Epistatic Genetic Variances from a Clonally Replicated Test of Loblolly Pine. *Forest Science* 49:77-88.
26. Frampton, J., **F. Isik** and B. Goldfarb. 2002. Effects of Nursery Characteristics on their Field Survival and Growth of Loblolly Pine Rooted Cuttings. *Southern J. of Applied Forestry* 26:207-213.
27. **Isik, F.**, K. Isik, T. Yildirim and B. Li. 2001. Annual shoot growth components related to growth of *Pinus brutia*. *Tree Physiology* 22:51–58.
28. **Isik, F.**, S. Keskin and S.E. McKeand 2001. Provenance variation and provenance-site interaction in *Pinus brutia* TEN.: Consequences on the defining of breeding zones. *Silvae Genetica* 49:213-223.
29. **Isik, F.**, K. Isik and S.J. Lee. 1999. Genetic variation in *Pinus brutia* in Turkey: I. Growth, Biomass and Stem Quality Traits. *Forest Genetics* 6:89-99.
30. Isik, K. and **F. Isik**. 1999. Genetic variation in *Pinus brutia* in Turkey: II. Branching and Crown Traits. *Silvae Genetica* 48:293-302.
31. Boydak, M., **F. Isik** and B. Dogan. 1998. The effect of prescribed fire on the regeneration of Lebanon Cedar (*Cedrus libani* A. Rich) in Kas, Antalya locality. *Turkish J. of Agriculture and Forestry* 22: 399-404.
32. Kaya, Z., and **F. Isik** 1997. The pattern of genetic variation in shoot growth of *Pinus brutia* populations sampled from the Taurus Mountains. *Silvae Genetica* 46:73-81

### Non-refereed papers and books (6 total)

1. **Isik, F.**, and John Frampton. 2006. Perspectives on forestry in Turkey. Sylvanet, Volume 19/ISSUE 1/Spring 2006, pages 13-15. A publication of the international forestry program. Department of For. and Env. Res.
2. Cengiz, Y., **F. Isik**, and S. Keskin. 1999. Fifth year results of *Pinus brutia* provenance trials. Technical bulletin No:11. W. Mediterranean Forest Research Institute, Antalya, Turkey. 41 p.
3. **Isik, F.**, K. Işık and S.J. Lee. Genetic variation in growth, biomass and stem quality traits in *Pinus brutia* in southern Turkey. 25<sup>th</sup> Biennial Southern Forest Tree Improvement Conference, July 11-14, New Orleans, USA. 1999.
4. **Isik, F.** 1998. Differentiation of *Pinus brutia* populations revealed by principal component analysis. Zencirci *et. al.* (Eds.). The Proceedings of International Symposium on in-situ Conservation of Plant Genetic Diversity. Crop Species Agricultural Research Institute. Ankara, Turkey: p 257-264.
5. **Isik, F.** 1998. Genetic variation, heritability and genetic gains from *Pinus brutia* Ten. Provenance-progeny trials. Western Mediterranean Forest Research Institute, Technical Bulletin No:7, Antalya, Turkey. 211 p.
6. **Isik, F.** and Z. Kaya. 1993. Genetic variation in *Pinus brutia* TEN. populations along the a transect from the sea level to high elevations. Seedling traits. International *Pinus brutia* Symposium. Ministry of Forestry of Turkey, FAO, IUFRO, October 18-23, Marmaris, Turkey: p 243-253.

### Proceeding Papers and Abstracts (36 total)

1. **Isik, F.**, R. Whetten, S. Garcia, P. Cumbie, S. McKeand, J. Grissom, T. Batista. 2007. Using markers in breeding, testing and selection in loblolly pine – current and future research. In: GENECAR Meeting. Application of DNA based tools for genetic research, molecular breeding, management and monitoring of genetic resources. September 22-23, Umea, Sweden. (Oral presentation and abstract).
2. Frampton, J., **F. Isik** and A. Braham. 2007. Genetic Variation in the Economic Value of Fraser Fir (*Abies fraseri*) Christmas Trees in North Carolina, USA. Eighth International Christmas Tree Research & Extension Conference IUFRO unit 2.02.09 (poster).
3. **Isik, F.**, S. McKeand, B. Li, H. Amerson. 2006. Marker aided selection of loblolly pine clones. Consortium for Plant Biotechnology Symposium. February 2-3, 2006. Washington D.C. (poster)
4. C. R. Morris, B. Goldfarb, **F. Isik**, . Li, C. Smith, H-m Chang, R. R. Sederoff, J. F. Kadla (2005) Variation of a-cellulose content and related metabolites during wood formation in loblolly pine -13th ISWFPC Proceedings - Auckland, NZ May 16-19, 2005.
5. Eckard, J.T., F. Isik, and B.P. Bullock. 2006. Prediction of Whole-Stem Solid Wood Properties of Superior Loblolly Pine Clones for Deployment. Information Exchange Group 40 Conference,

Incorporating Genetic Advances into Forest Productivity Systems: Value for All Landowners. Jacksonville, FL. Page 25 (poster).

6. Aspinwall, M., B. Li, S. McKeand, **F. Isik**, M. Gumpertz. 2006. Predicting Whole-Stem Wood Properties in Loblolly Pine. Information Exchange Group-40 meeting. Incorporating Genetic Advances into Forest Productivity Systems: Value for All Landowners. June 26-29, Jacksonville, FL (poster).
7. **Isik F.**, B. Li, B. Goldfarb. 2005. Genetic Variation in MFA, MOE and Wood Density among clones of *Pinus taeda* L. 28th Southern Forest Tree Improvement Conference, June 21-23. Raleigh, NC, USA (oral presentation).
8. Morris C.R., B. Goldfarb, **F. Isik**, C.S. Li, H-m. Chang, R. Sederoff, J.F. Kadla. 2005. Variation of a-cellulose content and related metabolites during wood formation in loblolly pine. 2005. 13th ISWFPC Proceedings, May 16-19, Auckland, New Zealand (poster).
9. Isik, K., **F. Isik**, Y. Kurt, G. Semiz. 2005. Genotypic Selectivity of Test Environments on Different Ecological Zones. 10th European Ecological Congress, November 8-13, Kusadasi, Turkey (abstract).
10. Li B., P. Belonger, **F. Isik**. 2004. Hybrid Heterosis of *Larix decidua* and *L. leptolepis* in US and Implications on Breeding Strategies. In Proceedings of International Symposium Larix 2004, September 26 to Oct. 1 in Kyoto, Japan (abstract).
11. Goldfarb, B., S.E. McKeand, A.V. LeBude, W.P. Cumbie, **F. Isik** and B. Li. 2004. Deployment issues: what kinds of research, development and demonstration activities are needed to address critical topics, such as public concerns, performance monitoring, and technologies for merchandising harvested clones? Agenda 2020 Technology Summit II: Meeting the Challenge of Deployment. March 28-31. Peachtree City, GA. USA (abstract).
12. Isik, K., **F. Isik**, N. Kaya, G.V. Semiz. 2004. Environmental Factors That Determine Within-Species Variation In Turkish Red Pine National Ecology and Environment Congress, October 5-8, Bolu, Turkey.
13. Isik, K., H. Ozturk, **F. Isik**, S. Siklar. 2004. Genetics of Mediterranean conifers: a brief report on three conifer species in Turkey. IUFRO Joint Conference of Division 2, "Forest Genetics and Tree Breeding in the Age of Genomics: Progress and Future". Nov. 1-5, Charleston, South Carolina, USA (abstract).
14. **Isik F.**, B. Li, B. Goldfarb. 2004. Cloned progeny testing for within-family selection in forest tree improvement programs. IUFRO Joint Conference of Division 2, "Forest Genetics and Tree Breeding in the Age of Genomics: Progress and Future". Nov. 1-5, 2004, Charleston, South Carolina, USA (abstract).
15. **Isik, F.**, and B. Li. 2004. Genetic variation among elite parents of *Pinus taeda* L. for woody density in three breeding populations. IUFRO Joint Conference of Division 2, "Forest Genetics and Tree Breeding in the Age of Genomics: Progress and Future". Nov. 1-5, Charleston, South Carolina, USA (abstract).
16. **Isik, F.**, B. Li, B. Goldfarb, J. Frampton, S. McKeand. 2004. Efficiency of clones versus seedlings for correlated response of wood density. IEG-40 Meeting, June 21-24, Jekyll Island, GA. USA (abstract).

17. Goldfarb B., A. LeBude, M. Gocke, B. Li, **F. Isik**, S. McKeand. 2004. Producing rooted cutting reforestation stock of Loblolly pine: Progress and Challenges. IEG-40 Meeting, June 21-24, Jekyll Island, GA. USA (abstract).
18. Li B., G. Jansson, **F. Isik**, B. Goldfarb. 2004. Breeding and selection strategies for full-sib families and clones in Loblolly pine. IEG-40 Meeting, June 21-24, Jekyll Island, GA, USA (poster).
19. McCall, E., and **F. Isik**. 2003. Volume gains of loblolly pine rooted clones at age 10 on two sites in Florida and Alabama. Abstract (p. 43). In: Proc. 27th Biennial Southern Forest Tree Improvement Conference, June 24-27, Stillwater, Oklahoma, USA.
20. Goldfarb, B., **F. Isik**, A. LeBude, S. McKeand, B. Li. 2003. Four-year results from a clonal test of loblolly pine. Abstract (p. 42). In: Proc. 27th Biennial Southern Forest Tree Improvement Conference, June 24-27, Stillwater, Oklahoma, USA.
21. Frampton, J., **F. Isik**, and C. Rosier. 2003. Genetic improvement of virginia pine for christmas tree production. Abstract (p. 31). In: Proc. 27th Biennial Southern Forest Tree Improvement Conference, June 24-27, Stillwater, Oklahoma, USA.
22. Sykes, R., **F. Isik**, B. Li, J. Kadla, H-m. Chang. 2003. Genetic variation of juvenile wood properties in loblolly pine diallel test. Abstract (p. 27). In: Proc. 27th Biennial Southern Forest Tree Improvement Conference, June 24-27, Stillwater, Oklahoma, USA.
23. **Isik, F.**, B. Li. 2003. Variation in estimation of genetic parameters from small disconnected diallel mating. Abstract (p. 20). In: Proc. 27th Biennial Southern Forest Tree Improvement Conference, June 24-27, Stillwater, Oklahoma, USA.
24. **Isik, F.**, B. Li, J. Frampton, G. Goldfarb. 2002. Seedling vs clonal testing options for loblolly pine. Abstract. In: Proc. of Silviculture and Genetic Impact on productivity of southern pine forests. IEG-40 Meeting. NC. September 17-19, Wrightsville Beach, NC, USA.
25. Isik, K., S. Keskin, **F. Isik** and Y. Cengiz. 2002. Clonal variation of flower production in a *Pinus brutia* seed orchard. Abstract (p. 30). In: Proc. of International Conference on Conservation, Regeneration and Restoration of Mediterranean Pines and Their Ecosystems. MEDPINE 2. September 8-13, Chania, Crete, Greece.
26. **Isik, F.**, B. Li. 2002. Using Resistograph to estimate genetic parameters from progeny trials and comparison with actual wood density. Abstract (p. 59). In: Proc. of Rocky Mountain Ecosystems: Diversity, complexity and interactions. Joint Meeting of 17th North American Forest Biology Workshop and Western Forest Genetics Association. July 15-18, Pullman, WA. USA.
27. **Isik, F.**, S. Keskin, R. Sabuncu, M. Sahin, N. Bas, Z. Kaya. 2001. Effects of water stress on the adaptive traits of *Pinus brutia* natural populations and families in a nursery trial. In: Proc. Global physiological and molecular responses to climatic stress of three Mediterranean conifers. Consequences for optimal use, conservation and sustainable improvement of their genetic resources. August 27-30, Paris, France.
28. **Isik, F.** B. Li, J. Frampton. 2001. Comparison of Genetic Variances Estimated from Seedlings and Rooted Cuttings of the Same Families of Loblolly Pine. p. 143-146. In: Proc. 26th Biennial Southern Forest Tree Improvement Conference, June 26-29, Athens, Georgia, USA.

29. **Isik, F.**, B. Li. 2001. Genetic variation in wood density and its measurement using the Resistograph. Abstract (p. 120). In: Proc. 26th Biennial Southern Forest Tree Improvement Conference, June 26-29, Athens, Georgia, USA.
30. **Işık, F.**, B. Li. 2001. Genetic variation in wood density and its measurement using the Resistograph. 26th Biennial Southern Forest Tree Improvement Conference, July 21-29, Athens, Georgia, USA.
31. **Isik, F.**, K. Işık, T. Yıldırım, B. Li. 2000. Shoot growth patterns related to growth and adaptation of *Pinus brutia* (Abstract). Bildiri, IUFRO XXI World Forestry Congress, August 7-12, Kuala Lumpur, Malezya.
32. **Isik, F.**, K. Isik, J.S. Lee. 1999. Genetic variation in growth, biomass and stem quality traits in *Pinus brutia* in southern Turkey. p. 88-92. In: Proc. the 25th Biennial Southern Forest Tree Improvement Conference. July 11-14, New Orleans, Louisiana, USA..
33. **Isik, F.** 1998. Differentiation of *Pinus brutia* populations revealed by principal component analysis. p. 257-264. In: The Proceedings of International Symposium on in-situ Conservation of Plant Genetic Diversity. Zencirci et. al. (Eds.). Central Crops Research Institute. Ankara, Turkey.
34. **Işık, F.**, B. Li, J. Frampton. 2001. Comparison of Genetic Variances Estimated from Seedlings and Rooted Cuttings of the Same Families of Loblolly Pine. 26th Biennial Southern Forest Tree Improvement Conference, July 21-29, Athens, Georgia, USA.
35. **Isik, F.**, K. Işık. 1998. Results from an eighteen year old *Pinus brutia* provenance-progeny trials. Forestry Symposium in 75<sup>th</sup> Anniversary of Turkish Republic, October 21-23, Harbiye, İstanbul, Turkey.
36. **Isik, F.** 1998. Efforts on conservation of forest genetic resources in Turkey. IUFRO All Division 2 Conference on Forest Genetics and Tree Improvement, 22-28, Beijing-China (poster).
37. **Isik, F.** 1996. Differentiation of *Pinus brutia* populations revealed by principal component analysis. The International Symposium on *In-Situ* Conservation of Plant Genetic Resources. November 4-8, Antalya, Turkey (proceeding paper).

**Meetings Attended (30 total, most recent meetings are listed)**

1. XVI Annual Plant Animal Genomics Conference. January 12-17, 2008, San Diego, CA, USA.
2. The Nordic Center of Advanced Research in Forest Genetics and Tree Breeding: Application of DNA based tools for genetic research, molecular breeding, management and monitoring of genetic resources. September 25-26, 2007. Umea, Sweden.
3. Plant Breeding Workshop, USDA-CSREES and NCSU Depts. of Crop Science and Horticultural Sciences. February 8-9, 2007, Raleigh, NC, USA
4. XV Annual Plant Animal Genomics Conference. January 14-17, 2007, San Diego, CA, USA.
5. IUFRO Division 2 joint Conference. Low input breeding and genetic conservation of forest tree species: Improvement, utilization and conservation. October 9-13, 2006, Antalya, Turkey

6. University Statisticians of Southern Experiment Stations (USSES) Conference. 6/26-6/28 2005 Blowing Rock, NC, USA.
7. Consortium for Plant Biotechnology Symposium. February 2-3, 2006. Washington D.C., USA.

## Grants, Contracts, and other support

Although I started to work in the department as a research assistant professor in 2002, I primarily worked on a USDA funded project until 2005. My work on actively securing grants started in 2005.

|                            |                             |                     |
|----------------------------|-----------------------------|---------------------|
| Total Applied (since 2005) | 15 proposals                | <b>\$ 7,795,260</b> |
| Awarded (since 2005)       | 5 proposals (external only) | <b>\$ 919,274</b>   |
| Pending (as of April 2008) | 3 proposals                 | <b>\$3,733,490</b>  |

Success Rate (# of external proposals funded / Total External = 5 / 15): **33%**

**Funded** (3 external, 2 internal, 3 commodity):

1. Vincent L. Chiang, Fikret Isik, Joel J. Ducoste, John Ralph, Ronald R. Sederoff. NSF - Plant Genome. Regulation and Modeling of Lignin Biosynthesis. September 2009-August 2012. **\$3,722,841.**
2. McKeand S., **F. Isik**, R. Whetten, D. Seneschal. Conifer Translational Genomics Network. USDA-CSREES. Plant Genome, Applied Plant Genomics Coordinated Agricultural Project. Total: **\$6,000,000.** Submitted February 2007. September 2007-August 2011. NCSU share: **\$550,000.**
3. **Isik, F.** Proposal for Faculty Exchange to Swedish University of Agricultural Sciences visit. Gunnar & Lillian Nicholson Graduate Fellowship and Faculty Exchange Fund in Forestry. November 2006- February 2007. (Internal). **\$5,546.**
4. **Isik, F.**, B. Li, B.P. Bullock, A. Clark, III, H. Chang, and P.M. Dougherty. Prediction of whole-stem wood quality of superior loblolly pine clones for deployment. USDA Forest Service Agenda 2020, Sustainable Forestry Research, Physiology of Forest Productivity. August 2005 – September 2008. **\$169,124.**
5. Schimleck, L., B. Li, **F. Isik.** Rapid techniques for screening wood properties for genetic improvement of loblolly pine. USDA Forest Service Agenda 2020, Sustainable Forestry Research, Physiology of Forest Productivity. August 2005 – September 2008. **\$181,000.**
6. **Isik, F.**, J. Frampton, D. Hazel. Performance of Different Seedlots of Turkish fir in Eastern North Carolina. Eastern North Carolina Christmas Tree Growers Association. April 2007-March 2006-2008. **\$12,600.**
7. **Isik, F.**, J. Frampton, D. Hazel. Genetic Variation in Turkish fir for Phytophthora Root Rot Resistance. North Carolina Christmas Tree Association. April 2006- March 2007. **\$6,550.**

8. **Isik, F.**, B.P. Bullock, and J. Frampton. Development of a Study Abroad Program in Turkey. Committee on International Programs, Study Abroad Development Grant. June 2006. (Internal), **\$2,000**.
9. Arbez, M., Z. Kaya, C. Plomion, **F. Isik**, Global physiological and molecular responses to climatic stress of three Mediterranean conifers (Pines of the *halepensis-brutia* section, maritime pine and Mediterranean cedars). Consequences for optimal use, conservation and sustainable improvement of their genetic resources. **\$980,000** in total, 1998-2002. Forest Research Station of Antalya, Turkey **\$53,000**.
10. **Isik, F.** Realized genetic gain from open-pollinated *Pinus brutia* seed orchards. The research project is funded by the Ministry of Forestry of Turkey and The Scientific and Technical Council of Turkey (TUBITAK). (1996). **\$2,000**

***Not Funded:***

1. Chiang, V., **F. Isik**, J. Ducoste, R. Sederoff. Predictive Model of Lignin Biosynthesis. Submitted January 21, 2008. NSF, Plant Genome Program. **\$3,531,588**.
2. Whetten, R., **F. Isik**, S. McKeand. Finding the Best Trees for Biofuels Feedstocks. Biofuels Center of North Carolina. March 2008-June 2009. **\$199,152**.
3. **Isik, F.**, S. McKeand, R. Whetten. Integrated Host Resistance to Fusiform Ruse Disease in Southern Pine Plantations. USDA-CSREES, Southern Integrated Pest Management. Submitted November 2007. **\$98,680**.
4. **Isik, F.**, R. Sederoff, S. McKeand, H. Cakir, M. Fuentes, S. DiFazio, G. Slavov. Predicting Transgene flow in loblolly pine. USDA-CSREES- Biotechnology Risk Assessment. Submitted February 2007. October 2008-September 2011. **\$386,051**.
5. **Isik, F.**, J. Frampton. Evaluation of Turkish and Trojan fir for Christmas Tree and Ornamental. Horticultural Research Institute. **\$16,371**.
6. **Isik, F.**, S. McKeand, R. Sederoff. Gene pyramiding in loblolly pine for enhanced resistance to fusiform rust disease. Consortium for Plant Biotechnology Research. Submitted June 2006. 2007-2009. **\$79,604**.
7. **Isik, F.**, S. McKeand, R. Whetten. Integrated Host Resistance to Fusiform Ruse Disease in Southern Pine Plantations. USDA-CSREES, Southern Integrated Pest Management. November 2006-2007. **\$82,468**.
8. **Isik, F.** S. McKeand. Major gene effects on operational gains from clonal deployment. Forest Biotechnology Industry Research Consortium (FORBIRC). June 2006. **\$17,000**.
9. Lucia, L., **F. Isik**, R. Sederoff. Extracting high value flavonoids from southern pine bark. Forest Biotechnology Industry Research Consortium (FORBIRC). June 2006. **\$16,000**.

10. Sederoff R., **F. Isik**, H-M. Chang, R. Kelly, D. Tiletta, D. Xie, V. Chiang, S. McKeand. Self-preserving loblolly pine: Genetic variation in pinosylvin. CNR Internal, Forest Biomaterials and Biotechnology Initiative. 2006. **\$20,000**.
11. Nelson, S., C.S. Apperson, **F. Isik**, R. Bruck, H. Cakir. Environmental Determinants of La Crosse Virus Transmission On the Cherokee Indian Reservation. NSF- Ecology of Infection Diseases. 2006-June 2012. **\$2,402,355**.
12. Nelson, S., **F. Isik**, C.S. Apperson, R. Bruck, H. Cakir, K. Dugan, H. Stubbs. Community-Based Research of Environmental Determinants Of La Crosse Virus Transmission on the Cherokee Indian Reservation: Development of a Landscape Model Using Remote Sensing and Field-Based Surveillance. April 2006-April 2011. **\$3,227,457**.

### Teaching and Mentoring

Until July 2007, my appointment was 100% research. Thus, I did not teach undergraduate courses, except several guest lectures. However, I see teaching as an important part of academic career. I developed and taught several graduate level courses in the College of Natural Resources and at the Institute for Advanced Analytics at the NCSU.

I enjoy engaging with students and teaching courses. The Data Management course I developed and taught focuses on hand-on experiences, such as using software to analyze data. Thus, students learn some theory of experimental designs but they also learn the tools (SAS programming) for application and interpretation of results. I have closely worked with the SAS Institute to include latest technologies into my teaching. I am continually improving my teaching skills by taking classes or workshops at NCSU and at the SAS Institute.

### *Courses Taught, Credit hours, and Enrollment*

| <b>Course</b> | <b>Title</b>                             | <b>Credits</b> | <b>Enrol.</b> | <b>Semester</b> |
|---------------|--|----------------|---------------|-----------------|
| FOR 728       | Quantitative Forest Genetics Methods     | 3              | 5             | Fall 2006       |
| NR 554        | Data Management in Nat. Res.             | 2              | 10            | Fall 2007       |
| FOR 295/595G  | Nat. Res. and Forestry Manage. in Turkey | 3              | 8             | Sum 2007        |
| AA 619        | Statistical Analysis and Application     | 2              | 24            | Sum 2007        |
| AA 591a       | Logistic Regression Models               | 2              | 24            | Fall 2008       |
| AA 591        | Statistical Foundation for Analytics     | 2              | 40            | Sum 2009        |
| AA 591a       | Logistic Regression Models               | 2              | 40            | Fall 2009       |
| FOR 728       | Quantitative Forest Genetics Methods     | 3              | 5             | Fall 2009       |

### Mentoring of students

| <b>Name</b>       | <b>Degree</b> | <b>Role</b> | <b>Status</b>        |
|-------------------|---------------|-------------|----------------------|
| <b>Funda Ogut</b> | PhD           | Co-Chair    | <i>Expected 2011</i> |

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|                       |     |          |                                |
|-----------------------|-----|----------|--------------------------------|
| <b>Jaime Zapata</b>   | PhD | Co-Chair | <i>Expected 2011</i>           |
| <b>Aaron Chamblee</b> | MS  | Co-Chair | <i>Expected 2011</i>           |
| <b>David Barker</b>   | MS  | Member   | <i>Expected 2010</i>           |
| <b>Jin Xiong</b>      | PhD | Member   | <i>Expected August 2010</i>    |
| <b>Daniel Grans</b>   | PhD | Member   | <i>Expected Spring 2010</i>    |
| <b>Tyler Eckard</b>   | MS  | Co-chair | <i>Graduated December 2007</i> |
| <b>Christian Mora</b> | PhD | Member   | <i>Graduated Spring 2009</i>   |
| <b>Mike Aspinwall</b> | MS  | Member   | <i>Graduated May 2007</i>      |
| <b>Lizzie Wood</b>    | MS  | Member   | <i>Graduated August 2009</i>   |
| <b>Matt Cuneo</b>     | MS  | Member   | <i>Graduated May 2009</i>      |
| <b>Leslie Hester</b>  | PhD | Member   | <i>Graduated 2008</i>          |
| <b>Mike Aspinwall</b> | PhD | Member   | <i>Expected December 2011</i>  |

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