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Riswanti Sigalingging adalah profesor pada Program Studi Teknik Pertanian dan Biosistem, Universitas Sumatera Utara. Beliau memperoleh gelar Doktor (Ph.D.) dari Engineering of Agricultural Technological Systems, Department of Mechanical Engineering, Czech University of Life Sciences, Prague (CULS), dan gelar Magister dari Institut Pertanian Bogor dengan fokus pada bidang Energi dan Kelistrikan (Energi Terbarukan), khususnya Analisis Energi dan Eksergi Produksi Biodiesel dari CPO (Crude Palm Oil). Riswanti juga pernah mengikuti program magang di INSA Rennes, Prancis pada Department of Mechanical and Control Systems Engineering.

Bidang keahlian beliau meliputi Teknik Energi Terbarukan dan Elektrifikasi Pertanian, dengan fokus penelitian pada pengembangan dan penerapan teknologi energi berkelanjutan di sektor pertanian. Beliau telah melakukan berbagai penelitian mendalam terkait produksi bioenergi, proses biodiesel non-katalitik, serta perancangan sistem reaktor inovatif untuk meningkatkan efisiensi energi dan keberlanjutan lingkungan.

Karya penelitian beliau juga mengeksplorasi integrasi energi terbarukan dengan sistem pertanian, termasuk prediksi kebutuhan energi menggunakan metode deep learning, pemanfaatan biomassa dan limbah pertanian untuk produksi energi, serta aplikasi material berbasis hayati untuk penyimpanan energi dan pengembangan bio-baterai. Melalui riset-riset tersebut, beliau berkomitmen untuk mengembangkan solusi energi bersih yang tidak hanya meningkatkan produktivitas pertanian, tetapi juga mendukung upaya global dalam mewujudkan keberlanjutan dan mengurangi ketergantungan pada energi fosil.

Publications

2026

Buku referensi

Dasar Termodinamika untuk Teknik Pertanian dan Biosistem

RISWANTI SIGALINGGING , CANDRA SIGALINGGING

2025

Jurnal nasional terakreditasi

PENERAPAN MESIN TEKNOLOGI PASTEURISASI SUSU KAMBING PADA UMKM TANAH JAWA DI SIMALUNGUN

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Community service to increase red chilli economic value with post-harvest technology at Poktan Berkah Tani, Pulau Gambar Village, Serbajadi District, Serdang Bedagai District

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Modelling of energy demand prediction system in potato using deep learning method. Res

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Prosiding seminar internasional

Study of Variations in Light Intensity and Length of Light Emitting Diode on the Growth and Productivity of Pak Choi Plants

RAGIL ARDIANI RITONGA , RISWANTI SIGALINGGING

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Palm oil mill effluent variation stage treatment methods to reduce organic matter in biogas production

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Penerapan Teknologi Pengemasan Menggunakan Mesin Vacum Sealer Dan Countinuous Band Sealer Pada Produk UMKM Ladang Bambu

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Photovoltaics Efficiency on Automatic Fish Feeding Distributors Device Using Internet of Things

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Study of Fruit Waste as Bio-battery Materials for Alternative Electricity

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2024

Prosiding seminar internasional

Potato cultivation energy ratio in Food Estate, Hutajulu, North Sumatra, Indonesia

LUKMAN ADLIN HARAHAHAP , RISWANTI SIGALINGGING , CANDRA SIGALINGGING

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Prosiding seminar internasional

The effect of NPK fertiliser on oil palm coefficient as a baseline water management during the nursery phase

SUMONO , RISWANTI SIGALINGGING

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Corn stem fiber fractionation by acid hydrolysis

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Analysis of energy used on shallot farming in Food Estate, Hutajulu, North Sumatra

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Jurnal nasional

Thermodynamic Analysis of Biodiesel Production with Catalyst and Non-Catalyst Process: Incase Energy Analysis

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Prosiding seminar internasional

Modelling of energy productivity prediction systems of shallots classification growth phase system using convolutional neural network

LUKMAN ADLIN HARAHAHAP , RISWANTI SIGALINGGING , NOVERITA SPRINSE VINOLINA

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Jurnal internasional bereputasi

Life cycle assessment of shallot farming in Food Estate Hutajulu, North Sumatra, Indonesia

LUKMAN ADLIN HARAHAHAP , RISWANTI SIGALINGGING , NOVERITA SPRINSE VINOLINA

2023

Buku lainnya

The Composition Effect of Arabica and Robusta Powder Coffee with Mixing Cocoa and Red Ginger Powder on Hedonic Values

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Prosiding seminar internasional

The composition effect of arabica and robusta powder coffee with mixing cocoa and red ginger powder on hedonic values

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Purification of glycerol from biodiesel by-product by using kitchen vinegar

RISWANTI SIGALINGGING , RAJU , SULASTRI PANGGABEAN

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Training of Banana Dodol Production at Ladang Bambu Village, Medan Tuntungan

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The effect of fermentation time on fruits as a producer electrical energy

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Growth and Secondary Metabolites Production of Centella asiatica (L.) Urb. Cultivated at Different Phosphate Application Rates in Acid Soil

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Analyses of Bioactive Compounds of Pegagan (Centella Asiatica (L.) Urb) from Samosir-Indonesia Accession

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Jurnal internasional

Analyses of Bioactive Compounds of Pegagan (Centella Asiatica (L.) Urb) from Samosir – Indonesia Accession

NOVERITA SPRINSE VINOLINA , RISWANTI SIGALINGGING

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Jurnal nasional

Penyediaan Air Bersih untuk Masyarakat Desa Semangat Kecamatan Merdeka Kabupaten Karo

SAIPUL BAHRI DAULAY , HASANUDDIN , NAZIF ICHWAN , RISWANTI SIGALINGGING

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The characteristics of oil from plastic cups using various rice husk mass as fuel on integration prototype device of organic-inorganic waste

RISWANTI SIGALINGGING , EDI SUSANTO

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Centella asiatica tendril growth of Samosir Indonesia accession

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Centella asiatica tendril growth of Samosir Indonesia accession

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Prosiding seminar internasional

The effect of airflow distribution on temperature, liquid smoke, rice husk ash and plastic oil yield using prototype systems of pyrolysis equipment organic-inorganic waste

EDI SUSANTO , SULASTRI PANGGABEAN , RISWANTI SIGALINGGING

2020
Jurnal nasional terakreditasi

Organic’s living pharmacy plants cultivating in Dorema Nusantara orphanage as a repressive step in inhibiting the expansion of Coronavirus transmission in North Sumatera Province

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2020
Jurnal nasional

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2019
Jurnal internasional bereputasi

Influence of porosity, permeability and expression force on oil yield of jatropha seeds.

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Influence of Porosity, Permeability and Expression Force on Oil Yield of Jatropha Seeds

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Utilization of solar power as DC water pump movement in hydroponic plants

POPPY HONORA , RISWANTI SIGALINGGING

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Compression behaviour of bulk rapeseed: Effects of heat treatment, force, and speed

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2017

Jurnal internasional bereputasi

Compression behaviour of bulk rapeseed: Effects of heat treatment, force and speed

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2017

Jurnal internasional bereputasi

Oil point and mechanical behaviour of oil palm kernels in linear compression

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2016

Monograf

Mathematical Description of Non-linear Mechanical Behaviour of Materials Under Compression Loading, Case Study: Spruce Bulk Wood Chips

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2015

Jurnal internasional bereputasi

Application of a tangent curve mathematical model for analysis of the mechanical behaviour of sunflo

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2015

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Effect of compression speed on energy requirement and oil yield of *Jatropha curcas* L. bulk seeds und

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2015

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Application of a tangent curve mathematical model for analysis of the mechanical behaviour of sunflower bulk seeds

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2015

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Mathematical models describing the relaxation behaviour of *Jatropha curcas* L. bulk seeds under axial compression

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Effect of compression speed on energy requirement and oil yield of *Jatropha curcas* L. bulk seeds under linear compression

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Deformation curve characteristics of rapeseeds and sunflower seeds under compression loading

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Tangent curve function description of mechanical behaviour of bulk oilseeds: A review

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Deformation energy of Jatropha curcas L. seeds under compression loading

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2013

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Mechanical behaviour of oil palm Kernels (Elaeis Guineensis)

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2013

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Testing The Number of Sprocket Groove on Coconut Fiber Mechanical Peeler

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Sistem Informasi Komoditas Tanaman Pangan (Padi dan Palawija) di Kabupaten Karo

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Pengabdian Masyarakat Mendukung Pengemasan Produk Olahan KWT Purnamasari, Kelurahan Jati Utomo, Binjai Utara

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Corn stem fiber fractionation by acid hydrolysis

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PEMETAAN POTENSI ENERGI ANGIN DI SUMATERA UTARA (Mapping of Wind Energy Potential in North Sumatera Province)

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Researches

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Penelitian Unggulan Perguruan Tinggi

PENINGKATAN LISTRIK YANG DIHASILKAN GENERATOR DARI BIOGAS

SULASTRI PANGGABEAN , RISWANTI SIGALINGGING , RAJU , SARAH N.A. SIMANULLANG , SURYA ARI WIBOWO , JEREMY
TAMBUNAN

2022

DEGRADASI SERAT DARI TANAMAN JAGUNG MENJADI BIOETANOL

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Penelitian Fundamental

Life Cycle Assessment Untuk Analisis Energi pada Sistem Digital Farming Food Estate di Desa Hutajulu, Kabupaten Tapanuli Utara, Sumatera Utara

LUKMAN ADLIN HARAHAHAP , RISWANTI SIGALINGGING , NOVERITA SPRINSE VINOLINA

2021

Penelitian Fundamental

Teknologi Peningkatan Kualitas Pegagan (*Centella asiatica*) Sebagai Tanaman Obat dan Pangan

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2020

Penelitian Unggulan Perguruan Tinggi

Kajian Ruang Bakar Alat Pirolisis Sekam Padi dan Limbah Plastik pada Pengolahan Bahan Bakar Berbasis Limbah Anorganik

EDI SUSANTO , SULASTRI PANGGABEAN , RISWANTI SIGALINGGING

2020

Penelitian Dosen Pemula

PEMURNIAN GLISEROL HASIL SAMPING PRODUKSI BIODIESEL DENGAN ASAM ORGANIK DAN ASAM ANORGANIK

SULASTRI PANGGABEAN , RISWANTI SIGALINGGING , RAJU

2019

Penelitian Dosen Pemula

MODIFIKASI ALAT PRODUKSI BIODIESEL SECARA KATALITIK DENGAN MENGGUNAKAN STATIC MIXING REACTOR

SULASTRI PANGGABEAN , RISWANTI SIGALINGGING , RAJU

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Penelitian Unggulan Perguruan Tinggi

Kajian Ruang Bakar Alat Pirolisis Sekam Padi dan Limbah Plastik pada Pengolahan Bahan Bakar Berbasis Limbah Anorganik

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2018

Penelitian Dosen Pemula

PEMANFAATAN POTENSI PANAS BUANG KONDENSOR KULKAS MINI KOMERSIL UNTUK PENGERINGAN CHIPS TEMULAWAK

SULASTRI PANGGABEAN , RISWANTI SIGALINGGING , ADIAN RINDANG

2017

Penelitian Fundamental

Kajian Nilai Koefisien Tanaman Bibit Kelapa Sawit Varietas Tenera (*Elaeis guineensis* Jacq.) Usia Tujuh Bulan Sebelum Pindah Tanam

SUMONO , RISWANTI SIGALINGGING

Community Services

2025

Ipteks

Peningkatan Kualitas dan Daya Saing Produk Usaha Kelompok Wanita Tani

Purnama Sari, Kel. Jati Utomo Binjai Utara Melalui Pemberian Mesin Pengemas

PUTRI CHANDRA AYU , SULASTRI PANGGABEAN , RISWANTI SIGALINGGING , AINUN ROHANAH

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Ipteks Bagi Masyarakat

Pemanfaatan Teknologi Pascapanen Mendukung Usaha Hilirisasi Produk Pertanian Oleh Kelompok Wanita Tani Purnama Sari di Kel. Jati Utomo, Binjai

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Ipteks Bagi Masyarakat

PEMANFAATAN TEKNOLOGI PASCAPANEN UNTUK MENINGKATKAN NILAI EKONOMIS CABAI MERAH DI POKTAN BERKAH TANI, DESA PULAU GAMBAR, KEC. SERBAJADI

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Pengabdian Kepada Masyarakat Kelompok Ibu Rumah Tangga Kampung Ladang Bambu, Medan Tuntungan

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2019
Ipteks Bagi Masyarakat

PENGABDIAN KEPADA MASYARAKAT KELOMPOK IBU RUMAH TANGGA KAMPUNG LADANG BAMBU, MEDAN TUNTUNGAN

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2010
Ipteks Bagi Masyarakat

IbM Kelompok Tani Padi di Kecamatan Rawang Panca Arga

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Paten nasional

Alat Pirolisis Limbah Plastik dan Sekam Padi

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