Leverage points for increased grain legume consumption: A Swedish case study

*Renewable Agriculture and Food Systems*

Mary Scheuermann, Stockholm University, Stockholm Resilience Centre, [mary.scheuermann@su.se](mailto:mary.scheuermann@su.se)  
Amanda Wood, Stockholm University, Stockholm Resilience Centre   
Line Gordon, Stockholm University, Stockholm Resilience Centre   
Elin Röös, Institute for Energy and Technology, Swedish University of Agricultural Sciences  
Lisen Schultz, Stockholm University, Stockholm Resilience Centre

The below table lists all of the actions identified in the evidence review, organized by leverage point and action category, and followed by a complete reference list.

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| Type | Possible leverage point (N=96) |
| Intent | Realign markets and norms   * Create social norms for the consumption of healthy foods (Brouwer et al. 2021) * Break the lock-in of wheat-soy dominant food system (Magrini et al. 2018) * Consider the production aspects of ecosystem services and rural economies in consumption-focused shifts (Rubiales 2018) * Adopt transformative value-chain capacities and business models (Iannetta et al. 2021) * Shift food choice responsibility away from individual and toward larger environment (Bucher et al. 2016); structural and cultural change necessary for climate change mitigation (IPCC 2022) * Break chorus of “responding to the market” and shift system organization to include priorities such as diversification (Pia 2020) * See healthy and sustainable diets as a public good (Wood et al. 2019)   National strategies   * Focus on dietary health as a political priority at the national level (Rust et al. 2020) * Develop a national food strategy (Quero et al. 2020); set specific goals for procurement purchases at national and local levels in the strategy (Lindström, Lundberg, and Marklund 2022) * Develop a national agriculture strategy includes legumes (Schwarz et al. 2021); specifically state and incentivize crops for human consumption within the strategy (Pia 2020) * Set a plant protein strategy (Martin 2018; von Ledebur 2019) * Adopt agroecological and/or biodiversity based agriculture models, and align political agenda with long term strategies needed for change (Galioto et al. 2021; Martinelli et al. 2022; Cusworth, Garnett, and Lorimer 2021) * Organize the food system around legume production (Iannetta et al. 2021) * Protect local pulse varieties and elevate short chain products (Solinas 2018) * Shift focus from increasing food production to primary food production that supports public health, ecosystem services, ecological and social well-being (Wood et al. 2019; Schwarz et al. 2021) |
| Design | Knowledge/collaborative networks   * Provide farmers with information about market drivers and barriers so they can connect with partners (Hamann, Vasconcelos, et al. 2019) * Farmers participate in benchmarking groups to foster transformation and incubate “the niche” (Cusworth, Garnett, and Lorimer 2021) * Develop farmer-researcher collaborations to stimulate collective learning (Carton et al. 2022) * Create pulse protein alliances/innovation groups (Willemsen 2018) * Fund and convene knowledge transfer networks (funded and organized by state) (von Ledebur 2019) * Farmers mentoring their peers (Schwarz et al. 2021) * Develop regional value chains through specific crop-based networks (Stute et al. 2020)   Reform value chain   * Rebuild the value chain using production contracts as a governance tool (Cholez and Magrini 2020; Hamann, Iannetta, et al. 2019) * Create cooperatives/alternative markets to develop local (and shorter) value chains (Steele 2018; Bliss et al. 2021; Schwarz et al. 2021) * Create local food policy councils to best develop local strategies (Wood et al. 2019) * Reform the value chain at a regional level through a Nordic “supercluster” (Sondergaard 2019)   New information flows between actors   * Researchers provide producers with mitigation options to select how they meet targets (Poore and Nemecek 2018) * Communicate consumer preferences to plant breeders to facilitate optimal selection (Vaz Patto et al. 2015) * Provide policymakers, processors and retailers (who add data and pass to consumers) about impacts of producers to reduce waste (Poore and Nemecek 2018) * Aggregate retailer scanner data to allow monitoring of dietary patterns and inform interventions (Wood et al. 2019) * Coordinate across levels of users (consumers, planners, infrastructure, technology, business models) (IPCC 2022) * Design information exchange to be agile and focused on consumer demand (Sweden Food Arena 2021) * Determine price interventions through the true costs of food production + what is affordable (Lassen, Christensen, and Trolle 2020) * Reflect the added value of agroecological products in direct sales and contracts between actors in the value chain (Schwarz et al. 2021)   Regulatory approach   * Treat value chains as managed networks instead of rational markets and apply to policy/regulation and support structures (Moorhouse 2022) * Include “food in all policies” (Wood et al. 2019)   CAP eligibility and farm regulations   * Lower Swedish baseline of minimum acreage for direct CAP payments (Pia 2020) * Modify CAP to require use of legumes as plant disease avoidance mechanism (Magrini 2018) * Institute a national legume requirement for CAP pillar 2 payments (Stute et al. 2020) * Use cost accounting at the farm level (Magrini 2018) * Enhance resilience through integrated crop production (Iannetta et al. 2021) * Limit inorganic N fertilizer use (Balázs et al. 2021)   Food environment   * Expand access to healthy, sustainable foods through regulations and fiscal policies (Lassen, Christensen, and Trolle 2020; Brouwer et al. 2021) * Incentivize sustainable consumption at point of purchase (Poore and Nemecek 2018) * Reduce or eliminate VAT on sustainably-marked products (European Commission 2020; Balkow and Domeij 2022) * Make plant-based products the default choice in food environments (Konsumentverket 2020; Taufik et al. 2022); position them first in canteens (Bucher et al. 2016) |
| Feedback | Realign timeframes   * Allow adequate time for new regulations to take effect so farmers can plan (Kałużyński 2018) * Adapt the short-term retail/wholesale timeframes to longer farming response times (Schwarz et al. 2021)   Feedback loops   * Pair farms for agro-ecological exchanges (e.g., feed/manure) (Pia 2020) * Create partnerships between processors and retailers with the right volume and price point to drive more demand for products, leading to more production (Hamann, Iannetta, et al. 2019) * Provide individual with a method of setting health goals and tracking healthy eating to show comparisons and align intentions with behavior (Brouwer et al. 2021) |
| Parameters | Increased investments   * Increase investment/subsidies for disease- and pest-resistant legume varieties (Watson et al. 2017) * Focus legume plant breeding on characteristics for cool seasons (Murphy-Bokern and Font 2022) * Invest public funds in minor crop research (Magrini 2018) * Provide public funds for plant breeding through academic institutions that cooperate with commercial breeders (Murphy-Bokern and Font 2022) * Increase CAP payment amounts for specific crop diversification schemes (Pia 2020) * Increase food crop payments for using evidence-based sustainability practices (European Commission 2022) * Increase predictability for farmers through stable (fixed) subsidy amounts, allowing for investments in legume production (Kałużyński 2018) * Pay Swedish farmers higher CAP amounts for independence from mineral fertilizer (or tax those that use it) (Pia 2020) * Invest in research and knowledge transfer (Balázs et al. 2021) * Invest in communication strategies for overcoming strangeness of legume-based meat substitutes (Röös, de Groote, and Stephan 2022)   Standards   * Require sustainability standards for producers (farms) (Poore and Nemecek 2018) * Implement food-grade quality assessment to allow farmers to profit from top-grade products (Murphy-Bokern and Font 2022) * Develop consistent standards for novel foods (van de Noort 2018) * Require inclusion of specific meal parameters for public meals (Ferreira, Pinto, and Vasconcelos 2021); implement in schools with complementary education programs; (Brouwer et al. 2021) * Restrict the parameters which can be included in tenders (Galioto et al. 2021) * Unify a European nutritional recommendation on pulses (Magrini 2018) * Include health and sustainability in Nordic nutrition guidelines (Wood et al. 2019) * Increase consumer willingness to pay for sustainable products through package labeling for nutritional, environmental, and locally-produced benefits (Marette 2021; Konsumentverket 2020) * Market regional products in a consistent way (e.g., rooted in farmer network) (Stute et al. 2020) * Create consumer behavior change campaigns, including front of package labelling requirements (Brouwer et al. 2021) * Communicate clearly in food/nutrition messages to children about sources of protein (not just animal-based) (Pinto et al. 2019) * Present food stories to complement menu changes in school settings (Stiles, Collins, and Beck 2022) * Include healthy and sustainable eating guidelines in food marketing, public procurement (Wood et al. 2019) * Market legume-based products as ‘alternatives’ rather than ‘substitutes’ (Röös, de Groote, and Stephan 2022) * All actors ask “to what extent does my consumption, product, or raw-material choice improve the function of production ecosystems and the sustainability of the value chains, bioregionally, and globally?” (Iannetta et al. 2021)   Sharing risk and profit   * Share risk between farms through partnerships when entering contracts (Schwarz et al. 2021) * Use secure and stable growing contracts for crops (Schwarz et al. 2021; Morel et al. 2020) * Spread profitability and risk among value chain actors (Sweden Food Arena 2021) * Distributors create investment fund for farms transitioning to agroecological practices (Schwarz et al. 2021)   Collaborative structures   * Bundle production of small and medium farmers to facilitate use by large buyers (Recknagel 2018; Stute et al. 2020) * Cooperatively invest in processing facilities that support added value creation (Schwarz et al. 2021) * Support “radical innovation” such as networks and research investment, particularly in processing and open innovation (Magrini 2018)   New tools, facilities, and products   * Enhance extension service with expertise in legumes and crop rotations (agro-ecology) (Balázs, Kelemen, and Szakál 2021) * Develop an easy-to-use tool to assess legumes as ecosystem services on farms (Magrini 2018) * Build additional processing facilities for sorting, cleaning, drying, and other processing (Tidåker et al. 2021; Gunnarsson and Chongtham 2018; Hamann, Vasconcelos, et al. 2019; Schwarz et al. 2021) * Build additional facilities for processing and wholesale/distribution (Pia 2020) * Use hubs as a “match-maker” between farmers and buyers (Schwarz et al. 2021) * Build flexible infrastructure to process pulses according to changing consumer tastes/demands (Pinto et al. 2019) * Offer continuously changing pulse-based products to sustain consumer demand via novel items (Hamann, Vasconcelos, et al. 2019) * Create more convenient and tasty foods (Lassen, Christensen, and Trolle 2020; Hamann, Vasconcelos, et al. 2019) * Develop different products made from raw ingredients, not only copies of meats and meat dishes (Bjurström and Lindgren 2016) * Use broader type of legume varieties for food (Julier et al. 2018) * Reformulate products such as including up to 40% faba bean flour in bread (Sepngang et al. 2020) * Open new types of food outlets (e.g., baby restaurants, vending machines) (Brouwer et al. 2021) * Create new opportunities for exposure to pulse varieties, which can influence attitudes and consumption patterns (Henn et al. 2021) |

**References**

Balázs, Bálint, Eszter Kelemen, Tiziana Centofanti, Marta W. Vasconcelos, and Pietro P.M. Iannetta. 2021. “Integrated Policy Analysis to Identify Transformation Paths to More Sustainable Legume-Based Food and Feed Value-Chains in Europe.” *Agroecology and Sustainable Food Systems* 45 (6): 931–53. https://doi.org/10.1080/21683565.2021.1884165.

Balázs, Bálint, Eszter Kelemen, and Diana Szakál. 2021. “Transitions to Legume-Based Agrifood Systems – Stakeholders’ Views from Hungary.” *International Journal of Sociology of Agriculture & Food* 27 (1): 119–40.

Balkow, Klas, and Åsa Domeij. 2022. “Sänk Momsen På Hållbar Mat För Grön Omställning.” *Dagens Industri*, May 21, 2022. https://etidning.di.se/p/dagens-industri/2022-05-21/r/3/4-5/2371/536795.

Bjurström, Lennart, and Tove Lindgren. 2016. “Proteinskiftet.” 8. Insikter. macklean. https://static1.squarespace.com/static/5d78e1040fcfe81e978a7dec/t/5e96ded3d84b1b6132625c01/1586945850633/macklean-insikter-8---proteinskiftet.pdf.

Bliss, K, A Villa, J Meldrum, C Zhang, A Vieweger, and C Bickler. 2021. “Getting out of the Commodity Trap: Enabling Diversity through an Alternative Food Network.” Presented at the DiverIMPACTS, February 22. https://www.zenodo.org/communities/diverimpacts/search?page=1&size=20&q=getting%20out%20of%20the%20commodity%20trap.

Brouwer, I. D., M. J. van Liere, A. de Brauw, P. Dominguez-Salas, A. Herforth, G. Kennedy, C. Lachat, et al. 2021. “Reverse Thinking: Taking a Healthy Diet Perspective towards Food Systems Transformations.” *Food Security*, October. https://doi.org/10.1007/s12571-021-01204-5.

Bucher, Tamara, Clare Collins, Megan E. Rollo, Tracy A. McCaffrey, Nienke De Vlieger, Daphne Van der Bend, Helen Truby, and Federico J. A. Perez-Cueto. 2016. “Nudging Consumers towards Healthier Choices: A Systematic Review of Positional Influences on Food Choice.” *British Journal of Nutrition* 115 (12): 2252–63. https://doi.org/10.1017/S0007114516001653.

Carton, Nicolas, Weronika Swiergiel, Pernilla Tidåker, Elin Röös, and Georg Carlsson. 2022. “On-Farm Experiments on Cultivation of Grain Legumes for Food – Outcomes from a Farmer–Researcher Collaboration.” *Renewable Agriculture and Food Systems*, April, 1–11. https://doi.org/10.1017/S1742170522000102.

Cholez, Célia, and Marie-Benoît Magrini. 2020. “Production Contracts as a Networking Lever for System Building: Some Evidence from a Comparative Analysis of Agrifood Value-Chains in Europe.” https://www.researchgate.net/publication/350313059.

Cusworth, George, Tara Garnett, and Jamie Lorimer. 2021. “Agroecological Break out: Legumes, Crop Diversification and the Regenerative Futures of UK Agriculture.” *Journal of Rural Studies* 88 (December): 126–37. https://doi.org/10.1016/j.jrurstud.2021.10.005.

European Commission. 2020. “Farm to Fork Strategy.” https://ec.europa.eu/food/system/files/2020-05/f2f\_action-plan\_2020\_strategy-info\_en.pdf.

———. 2022. “New CAP Fact Sheet.” New CAP Fact Sheet. February 2022. https://ec.europa.eu/info/sites/default/files/food-farming-fisheries/key\_policies/documents/factsheet-newcap-environment-fairness\_en.pdf.

Ferreira, Helena, Elisabete Pinto, and Marta W. Vasconcelos. 2021. “Legumes as a Cornerstone of the Transition Toward More Sustainable Agri-Food Systems and Diets in Europe.” *Frontiers in Sustainable Food Systems* 5 (August): 694121. https://doi.org/10.3389/fsufs.2021.694121.

Galioto, Francesco, Oriana Gava, Andrea Povellato, Francesco Vanni, and Andrea Povellato. 2021. “Innovative Market and Policy Instruments to Promote the Agro-Ecological Transition Strategies.” D5.4. Understanding & Improving the Sustainability of Agro-Ecological Farming Systems in the EU. UNISECO. https://uniseco-project.eu/resources.

Gunnarsson, Anita, and Raj Chongtham. 2018. “Diversification through Intercropping, with a Special Focus on Grain Legumes in Southern Sweden.” Presented at the DiverIMPACTS, Sweden, June 5. https://www.zenodo.org/record/5549715#.YXJ8qmJBw2w.

Hamann, Karen, Pete Iannetta, Fanny Tran, Damien Bienkowski, Roger Vickers, Becky Howard, Nikola Blazon, et al. 2019. “Best Practices for the Commercialisation of Legumes.” Deliverable D4.6. Transition paths to sustainable legume-based systems in Europe. 20 October 2021. www.true-project.eu.

Hamann, Karen, Marta Vasconcelos, Nora Lörich, David Odee, Roger Vickers, Nikola Blazon, Magdalena Trstenjak, et al. 2019. “A Map of Value Chains for Legumes Used as Food.” Technical Report 4.1. Transition paths to sustainable legume-based systems in Europe.

Henn, Katharina, Hannelore Goddyn, Søren Bøye Olsen, and Wender L.P. Bredie. 2021. “Identifying Behavioral and Attitudinal Barriers and Drivers to Promote Consumption of Pulses: A Quantitative Survey across Five European Countries.” *Food Quality and Preference*, November, 104455. https://doi.org/10.1016/j.foodqual.2021.104455.

Iannetta, Pietro P. M., Cathy Hawes, Graham S. Begg, Henrik Maaß, Georgia Ntatsi, Dimitrios Savvas, Marta Vasconcelos, et al. 2021. “A Multifunctional Solution for Wicked Problems: Value-Chain Wide Facilitation of Legumes Cultivated at Bioregional Scales Is Necessary to Address the Climate-Biodiversity-Nutrition Nexus.” *Frontiers in Sustainable Food Systems* 5 (July): 692137. https://doi.org/10.3389/fsufs.2021.692137.

IPCC. 2022. “IPCC AR6 WGIII Report.” https://report.ipcc.ch/ar6wg3/pdf/IPCC\_AR6\_WGIII\_FinalDraft\_FullReport.pdf.

Julier, B., L. Skøt, S. Weise, Ð. Karagić, I. Roldán-Ruiz, P. Barre, and D. Lloyd. 2018. “Breeding Forage and Grain Legumes to Increase EU’s and China’s Protein Self-Sufficiency.” In *Breeding Grasses and Protein Crops in the Era of Genomics*, edited by Gintaras Brazauskas, Gražina Statkevičiūtė, and Kristina Jonavičienė, 103–8. Cham: Springer International Publishing. https://doi.org/10.1007/978-3-319-89578-9\_18.

Kałużyński, Marek. 2018. “Protein Plants in Poland.” Presented at the Workshop on plant proteins - agronomic practices and environmental benefits, Bucharest, Romania, June 11. https://ec.europa.eu/info/events\_en?facet\_\_select\_\_field\_core\_pages=110624&facet\_\_checkboxes\_\_field\_event\_external\_event=off.

Konsumentverket. 2020. “Underlagsrapport 2020:4 Metoder för att ändra kostvanor.” 4.

Lassen, Anne D., Lene M. Christensen, and Ellen Trolle. 2020. “Development of a Danish Adapted Healthy Plant-Based Diet Based on the EAT-Lancet Reference Diet.” *Nutrients* 12 (3): 738. https://doi.org/10.3390/nu12030738.

Ledebur, Ernst-Oliver von. 2019. “The German National Protein Plan and the CAP Post 2020 - the German Approach.” Presented at the Plant Protein Seminar, Helsinki, Finland, November 18. https://www.vyr.fi/document/1/906/9e17ee7/protei\_93bbaa0\_German\_Protein\_Plant\_Strategy\_and\_the\_new\_CAP.pdf.

Lindström, Hanna, Sofia Lundberg, and Per-Olov Marklund. 2022. “Green Public Procurement: An Empirical Analysis of the Uptake of Organic Food Policy.” *Journal of Purchasing and Supply Management*, March, 100752. https://doi.org/10.1016/j.pursup.2022.100752.

Magrini, Marie-Benoit. 2018. “Why and How to Promote More Diversified Protein Plants as Pulses in Agrifood Sytems?” Presented at the Research & Innovation in Plant Proteins, Brussels, Belgium, April 24.

Magrini, Marie-Benoit, Marc Anton, Jean-Michel Chardigny, Gerard Duc, Michel Duru, Marie-Helene Jeuffroy, Jean-Marc Meynard, Valerie Micard, and Stephane Walrand. 2018. “Pulses for Sustainability: Breaking Agriculture and Food Sectors Out of Lock-In.” *Frontiers in Sustainable Food Systems* 2 (October): 64. https://doi.org/10.3389/fsufs.2018.00064.

Marette, Stéphan. 2021. “Sustainability and Consumer Willingness to Pay for Legumes: A Laboratory Study with Lentils.” *Sustainability* 13 (6): 3408. https://doi.org/10.3390/su13063408.

Martin, Alexandre. 2018. “A Strategy on Plant Proteins : Insights from France Protein Summit.” Presented at the Protein Summit, October 25.

Martinelli, Federico, Anna-Lena Vollheyde, Miguel A. Cebrián-Piqueras, Christina von Haaren, Elisa Lorenzetti, Paolo Barberi, Francesco Loreto, et al. 2022. “LEGU-MED: Developing Biodiversity-Based Agriculture with Legume Cropping Systems in the Mediterranean Basin.” *Agronomy* 12 (1): 132. https://doi.org/10.3390/agronomy12010132.

Moorhouse, Jan. 2022. “Shaping the National Food Strategy,” 4.

Morel, Kevin, Eva Revoyron, Magali San Cristobal, and Philippe V. Baret. 2020. “Innovating within or Outside Dominant Food Systems? Different Challenges for Contrasting Crop Diversification Strategies in Europe.” Edited by Til Feike. *PLOS ONE* 15 (3): e0229910. https://doi.org/10.1371/journal.pone.0229910.

Murphy-Bokern, Donal, and Montse Costa Font. 2022. “A Delphi Study of Production Constraints and Opportunities for Legumes Grown in Europe.” Legume Translated Report 5. www.legumehub.eu.

Noort, Mariet van de. 2018. “Food Chain, High Value, Specialised Markets.” Presented at the Supply Chains in the EU Protein Sector, Chalon-sur-Saone, France, July 11. https://ec.europa.eu/info/events\_en?facet\_\_select\_\_field\_core\_pages=110624&facet\_\_checkboxes\_\_field\_event\_external\_event=off.

Pia, Chiara. 2020. “Agro-Ecological Diversification in Meat and Dairy Farms.” Uppsala, Sweden: Sveriges lantbruksuniversitet.

Pinto, Alexandra, Manuela Guerra, Bruna Carbas, Shivani Pathania, Ana Castanho, and Carla Brites. 2019. “Challenges and Opportunities for Food Processing to Promote Consumption of Pulses.” *Revista de Ciências Agrárias*, January, 571-582 Páginas. https://doi.org/10.19084/RCA16117.

Poore, J., and T. Nemecek. 2018. “Reducing Food’s Environmental Impacts through Producers and Consumers.” *Science* 360 (June): 987–92. https://doi.org/10.1126/science.aaq0216.

Quero, Alba Linares, Oriana Gava, Andrea Povellato, Gerald Schwarz, Uxue Iragui Yoldi, Carlos Astrain Massa, Francesco Galioto, and Francesco Vanni. 2020. “Participatory Analysis of Market and Policy Instruments for Agro-Ecological Transition.” 5.3. Understanding & Improving the Sustainability of Agro-Ecological Farming Systems in the EU. UNISECO. https://uniseco-project.eu/resources.

Recknagel, Jürgen. 2018. “Regional Adaptation of Soybean Production in Germany.” Presented at the Workshop on plant proteins - agronomic practices and environmental benefits, Bucharest, Romania, June 12. https://ec.europa.eu/info/events\_en?facet\_\_select\_\_field\_core\_pages=110624&facet\_\_checkboxes\_\_field\_event\_external\_event=off.

Röös, Elin, Annica de Groote, and Andreas Stephan. 2022. “Meat Tastes Good, Legumes Are Healthy and Meat Substitutes Are Still Strange - The Practice of Protein Consumption among Swedish Consumers,” 8.

Rubiales, Diego. 2018. “Research Challenges for Protein Crops.” Presented at the Research & Innovation in Plant Proteins, Brussels, Belgium, April 24.

Rust, Niki A., Lucy Ridding, Caroline Ward, Beth Clark, Laura Kehoe, Manoj Dora, Mark J. Whittingham, et al. 2020. “How to Transition to Reduced-Meat Diets That Benefit People and the Planet.” *Science of The Total Environment* 718 (May): 137208. https://doi.org/10.1016/j.scitotenv.2020.137208.

Schwarz, Gerald, Jaroslav Prazan, Jan Landert, David Miller, Francesco Vanni, Johannes Carolus, Rainer Weisshaidinger, et al. 2021. “Report on Key Barriers of AEFS in Europe and Co-Constructed Strategies to Address Them.” 3.4. Understanding & Improving the Sustainability of Agro-Ecological Farming Systems in the EU. UNISECO. https://uniseco-project.eu/resources.

Sepngang, Bruno KEZEYA, Frédéric Muel, Tiana Smadja, Wolfgang Stauss, Ina Stute, Maelle Simmen, and Marcus Mergenthaler. 2020. “Report on Legume Markets in the EU,” 103.

Solinas, Laura. 2018. “Demand in a Short Supply Chain.” Presented at the Market Segments in the EU Protein Sector, Lelystad, Netherlands, September 18. https://ec.europa.eu/info/events/workshop-market-segments-eu-protein-sector-2018-sep-17\_en.

Sondergaard, Henrik. 2019. “Climate KIC’s System Perspective on a Sustainable Nordic Alternative Protein Industry.” Presented at the Plant Protein Seminar, Helsinki, Finland, November 18. https://ec.europa.eu/info/events\_en?facet\_\_select\_\_field\_core\_pages=110624&facet\_\_checkboxes\_\_field\_event\_external\_event=off.

Steele, Adrian. 2018. “State of Play and Future Prospects.” Presented at the Marget Segments in the EU Protein Sector, Lelystad, Netherlands, September 18. https://ec.europa.eu/info/events/workshop-market-segments-eu-protein-sector-2018-sep-17\_en.

Stiles, Garalynne, Jorja Collins, and Kathryn L Beck. 2022. “Effectiveness of Strategies to Decrease Animal-Sourced Protein and/or Increase Plant-Sourced Protein in Foodservice Settings: A Systematic Literature Review.” *Journal of the Academy of Nutrition and Dietetics* 122 (5): 1013–48. https://doi.org/10.1016/j.jand.2021.12.010.

Stute, Ina, Bruno Kezeya-Sepngang, Verena Haberlah-Korr, and Marcus Mergenthaler. 2020. “Cultivation of Faba Beans for Regional Protein Supply: A Case Study on the Association ‘Rheinische Ackerbohne e.V.’” *International Food and Agribusiness Management Review* 23 (4): 643–59. https://doi.org/10.22434/IFAMR2019.0179.

Sweden Food Arena. 2021. “Förutsättningar För Innovation i Den Växtbaserad Värdekedjan: En Gap Analys.” Stockholm: Sweden Food Arena.

Taufik, Danny, Emily P. Bouwman, Machiel J. Reinders, and Hans Dagevos. 2022. “A Reversal of Defaults: Implementing a Menu-Based Default Nudge to Promote out-of-Home Consumer Adoption of Plant-Based Meat Alternatives.” *Appetite* 175 (August): 106049. https://doi.org/10.1016/j.appet.2022.106049.

Tidåker, Pernilla, Hanna Karlsson Potter, Georg Carlsson, and Elin Röös. 2021. “Towards Sustainable Consumption of Legumes: How Origin, Processing and Transport Affect the Environmental Impact of Pulses.” *Sustainable Production and Consumption* 27 (July): 496–508. https://doi.org/10.1016/j.spc.2021.01.017.

Vaz Patto, Maria C., Ryszard Amarowicz, Alberta N. A. Aryee, Joyce I. Boye, Hyun-Jung Chung, Maria A. Martín-Cabrejas, and Claire Domoney. 2015. “Achievements and Challenges in Improving the Nutritional Quality of Food Legumes.” *Critical Reviews in Plant Sciences* 34 (1–3): 105–43. https://doi.org/10.1080/07352689.2014.897907.

Watson, Christine A., Moritz Reckling, Sara Preissel, Johann Bachinger, Göran Bergkvist, Tom Kuhlman, Kristina Lindström, et al. 2017. “Grain Legume Production and Use in European Agricultural Systems.” In *Advances in Agronomy*, 144:235–303. Elsevier. https://doi.org/10.1016/bs.agron.2017.03.003.

Willemsen, Jeroen. 2018. “A European Strategy for the Promotion of Protein Crops: A Consumption Approach.” Presented at the Market Segments in the EU Protein Sector, Lelystad, Netherlands, September 18. https://ec.europa.eu/info/events/workshop-market-segments-eu-protein-sector-2018-sep-17\_en.

Wood, Amanda, Line J. Gordon, Elin Röös, Johan O. Karlsson, Tiina Häyhä, Victoria Bignet, Tove Rydenstam, Louise Hård af Segerstad, and Martin Bruckner. 2019. “Nordic Food Systems for Improved Health and Sustainability: Baseline Assessment to Inform Transformation.” March 2019. https://www.stockholmresilience.org/download/18.8620dc61698d96b1904a2/1554132043883/SRC\_Report%20Nordic%20Food%20Systems.pdf.