Milken-Motsepe Prize in AgriTech

Competition Rules

The Milken-Motsepe Innovation Prize program is a series of technology prize competitions that address some of the world's most pressing challenges—such as access to food, energy, housing, and education—with a spotlight on the African continent. The inaugural Milken-Motsepe Prize in AgriTech is designed to inspire innovative solutions that increase economic value for small and medium-sized farms, from seed to sale. It offers $2 million in prizes, with a $1 million grand prize for the winning team and $1 million in a range of additional prizes. Registration is free and open to everyone.

These competition rules contain the detailed specifications, requirements, and timeline of the Milken-Motsepe Prize in AgriTech. The competition rules may be revised by the judges at any time. All active teams will be provided with additional information as needed during the competition and notified immediately of any changes.

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1. The Purpose

The aim of the Milken-Motsepe Prize in AgriTech is to improve the net economic value to and, as a result, the economic security of small and medium-sized farms in Africa. Many small and medium-sized farms in Africa face two large challenges to realizing the full economic value of the crops they plant. First, they suffer from low agricultural productivity as compared to larger farms, and second, they face significant post-harvest crop loss on their way to market. The Milken-Motsepe Prize in AgriTech will reward innovations that either increase farm productivity or reduce post-harvest loss.

2. The Approach

The open, global prize structure of the Milken-Motsepe Prize in AgriTech encourages unconventional innovators and local and non-traditional voices to participate. Teams across a wide range of geographies and disciplines will receive free training resources, mentoring, and networking opportunities to improve their chances of competing successfully. Beyond funding the most viable ideas, this approach also aims to strengthen the broader entrepreneurship and innovation ecosystem in AgriTech.

3. The Challenge

Winning teams will increase net economic value to small and medium-sized farms in Africa by increasing productivity on the farm and/or decreasing post-harvest loss.

4. Eligibility

Registration is open to any individual or team, globally, with the exception of:

1. Any individual or entity organized or with primary residence in an embargoed country[1]
2. Any individual or entity listed on OFAC's Specially Designated Nationals and Blocked Persons List or other sanctions list administered by OFAC[2]

[1] See https://home.treasury.gov/policy-issues/financial-sanctions/sanctions-programs-and-country-information for details.

[2] See https://home.treasury.gov/policy-issues/financial-sanctions/specially-designated-nationals-and-blocked-persons-list-sdn-human-readable-lists for details.

3. Any employee or immediate family member of an employee of the Milken Institute or the Motsepe Foundation

Any individual under the legal age of majority in his or her primary residence must have an adult of legal age sign legal documents on the team's behalf.

5. Requirements for Successful Submittals

Teams' submittals may include innovations at any stage of the agricultural cycle, from seed to sale. They should be suitable for use for at least one crop from the Crop Specification Table (Appendix B) grown by small and medium-sized farms anywhere in Africa. If a crop(s) is not included in the list, a team may petition for particular crop(s) to be considered in their submittal. Productivity can be increased through any innovations up through the harvesting process. Post-harvest loss can be reduced by innovations between the beginning of harvest and when the product is sold at market. Submittals must also include a sustainable business model that explains how those innovations will be made accessible to and affordable for small and medium-sized farms.

6. Competition Overview

6.a. Competition Structure

The competition includes two rounds: an eight-month Design Round and a one-year Finalist Round. Twenty-five prizes will be awarded at the end of the Design Round, and these teams will proceed to the Finalist Round. At the end of the Finalist Round, five prizes will be awarded. Throughout the competition, teams are provided with ongoing free mentoring, resources, and networking opportunities.

6.b. Competition Timeline

Date	Activity	Description
April 23, 2021	Team Registration Begins	Teams register for the competition.
December 8, 2021	Team Registration Ends Design Round Submittals	Teams submit their designs for judging by 6 pm UTC December 8, 2021.

January 2022	Design Round Judging	Design Round submittals are judged.
February 2022	Design Awards	Design Awards are announced. 25 teams proceed to the Finalist Round.
February 2022	Finalist Round Begins	Teams field test their designs on small and medium-sized farms in Africa.
March 2022	Finalist Test Protocols Approved	Teams submit test protocols. Judges approve those protocols after review and revision.
July 2022	Investor Showcase	Teams meet for an Investor Showcase featuring educational events and sessions with investors and policy makers.
February 8, 2023	Finalist Round Submittals	Teams submit by 6 pm UTC on February 8, 2023 their field test measurements and documentation of their results along with a detailed business model specifying the strategy for deployment, affordability, and access to the target population.
March 2023	Finalist Round Judging	Finalist Round submittals are judged.
April 2023	Finalist Awards	Finalist Awards are announced.

6.c. Team Registration

The team registration period begins when the prize is announced and ends at the deadline for submittal. Teams may register at any time during that period.

Teams must be registered by team leaders. Team leaders will be responsible for maintaining rosters of all team members and for their ongoing compliance with these competition rules and the Competitor Agreement. A team leader must also designate a prize recipient, which is the person or organization to which prizes will be awarded (prizes

will be awarded to one recipient only). A different team leader or prize recipient may be designated at any time during the competition.

6.d. Judging

A selection of global experts in technology innovation and in the production, management, processing, marketing, and/or distribution of crops by small and medium-sized farms will judge the submittals. Their judgments will be final and without appeal by entrants, the Milken Institute, or the Motsepe Foundation. In addition, in consultation with the prize organizers and advisory board, the judges have authority to change the amount of any prize.

The judges and their representatives will be independent of the teams, the Motsepe Foundation, and the Milken Institute, and they will have no conflicts of interest with any of those parties. The judges or their representatives may observe any test or demonstration performed in the competition, in person or remotely.

The judges will keep team submittals confidential. Prize winners in each round, however, will be expected to demonstrate and describe their designs in public.

6.e. Intellectual Property Rights

Teams will retain complete ownership of all intellectual property developed for the competition.

7. Design Round

7.a. Design Round Submittal

The Design Round submittal is a detailed description of a team's design and business model. It must include:

- *Design document*: a single PDF document of at least 2 pages, and no more than 25 pages
- *Business model document*: a single PDF document of at least 2 pages, and no more than 25 pages
- *Video*: a presentation or demonstration of the team's design, no longer than three minutes, in MP4 format

- *Competitor Agreement*: the team's agreement to abide by the terms of the competition

It may optionally include:

- *Design workbook*: a Microsoft Excel workbook supporting the design document
- *Business model workbook*: a Microsoft Excel workbook supporting the business model document

All mandatory and optional documents must be in English. Videos must either be in English or contain English subtitles. Links to Google Docs, Google Sheets, or other online materials are not acceptable.

Teams may submit materials November 1, 2021 (6 pm UTC) to December 8, 2021 (6 pm UTC). Submittals that do not contain all required materials or exceed the maximum length will be disqualified. Submittals after 6 pm UTC on December 8, 2021 will be automatically disqualified. Submittals that appear likely to harm people or cause significant harm to the environment will be disqualified.

7.b. Design Round Crop Selection

The design document should specify at least one crop from the Crop Specification Table (Appendix B) to which the submittal is applicable. After looking at regional needs of smallholder farmers and cross-referencing crops suffering significant losses across Africa, we identified 17 crops (Appendix B) that could increase economic value across the continent – with the right innovative technological innovations. These crops identified (Appendix B) provide a list of suggested crops to include in teams' submittals. If a crop(s) is not included in the list (Appendix B), a team may petition for particular crop(s) to be considered in their submittal. The most important questions to keep in mind before petitioning to add a given crop or crops are:

- Could my design be applicable to crops already listed in the crop table?
- Could my design be applicable to more than one crop?
- Is this crop going to make a difference for small and medium-sized farms in Africa?
- How is my innovative solution designed to increase the economic value of the crop(s) at scale?

7.c. Design Round Judging Criteria

Teams' submittals will be judged upon their potential to increase net economic value to the farmer by increasing productivity on the farm and/or decreasing post-harvest loss. Teams' submittals should also specify which country(s) they plan to conduct their field test in. If possible, teams should provide the target city, municipality, or township within Africa where teams are intending to conduct their field test. In their execution, submittals will be judged on their potential to:

- Reduce costs to small and medium-sized farms
- Be implemented in practice by small and medium-sized farms
- Be deployed affordably or at scale, based on a viable business model
- Develop or integrate innovative technologies into current farming practices on small and medium-sized farms

The judges will also consider each submittal's environmental, agricultural, and social impact. Submittals that cause environmental harm, damage long-term agricultural productivity, encourage unsafe labor practices, and/or create unfair economic effects will be penalized in the judges' evaluations. **Submittals that appear likely to harm people or cause significant harm to the environment will be disqualified.**

Judging Criteria		
Prize challenge statement (50%)	Net economic value	25%
	Post-Harvest Loss and/or Farm Productivity	25%
Additional impact metrics (50%)	Environmental, agricultural or social impact	10%
	Financial sustainability and scalability	20%
	Degree of Innovation	20%
Total		100%

7.d. Design Round Prizes

In the Design Round, up to 25 prizes of $10,000[3] each will be awarded:

Prize Type	Number	Amount	Total
Increased Productivity	5	$10,000	$50,000
Reduced Post-Harvest Loss	5	$10,000	$50,000
Judges' Choice (increased productivity and/or reduced post-harvest loss)	Up to 13	$10,000	$130,000
Best Youth Submission (majority of team under age 24)	1	$10,000	$10,000
Best Use of Technological Innovation	1	$10,000	$10,000
Total	*25*		*$250,000*

8. Finalist Round

All Design Round prize winners will proceed to the Finalist Round. If any team cannot afford to proceed it may apply for a grant of up to $10,000. Up to a total of $100,000 in such grants may be awarded. Grant application materials will be made available after the Design Round prizes are announced.

8.a. Finalist Round Testing

Teams must perform a field test of their design and collect quantitative data on its results. Teams must also collect the same quantitative data in a simultaneous control test using conventional farming methods. Testing should involve a crop from the Crop Specification Table (Appendix B) and be done on a small or medium-sized farm anywhere in Africa. Both tests must be performed at the same location. Teams are responsible for obtaining access to farms with appropriate facilities and conditions. Teams must also provide all operating requirements for their tests, including personnel, electricity, water, other consumable or

[3] All amounts are in US Dollars.

reusable inputs, and waste processing and disposal. Teams must record and report the actual operating costs of their field and control tests.

In the timeframe set forth by the judges, teams must provide detailed field test protocols to the judges. These protocols must measure a design's effectiveness and include measurements of all relevant quantitative aspects of the field and control tests, including all costs, and specify a detailed reporting format. They must describe the testing location and facilities as well as any installation or operational procedures.

The judges must approve the testing protocols and may require changes to produce measurements that are more easily compared across teams. Test protocols must include provisions permitting the judges or their representatives to observe or monitor any portion of the field or control tests. The judges will also consider each submittal's potential negative environmental, agricultural, labor practice, and economic impacts as described in the Design Round.

8.b. Finalist Round Investor Showcase

A mandatory online Investor Showcase will be held midway through the Finalist Round. The Investor Showcase provides a forum for the 25 Finalist teams to meet investors and pitch their ideas in Q3 2022. The Investor Showcase also provides a forum for open dialogue between Finalist teams and investors to discuss startup investing trends on the continent including regulatory considerations across startup ecosystems and understanding the mindset of startup investors. Investors may either offer advice to teams or are free to make a deal. Details of the Investor Showcase will be made available early in the Finalist Round.

8.c. Finalist Round Submittal

At the end of the Finalist Round, teams will submit reports, as specified in their testing protocols, documenting the performance of their designs.

Teams must also submit detailed business models showing how small and medium-sized farms can afford to adopt their designs. Models must describe, at a minimum:

- Means of delivery and cost to small and medium-sized farms
- Operating requirements (water, power consumable/reusable inputs, staff, etc.)
- Estimated three-year total cost of ownership, including maintenance

Additional design and/or technical materials may be submitted, but all documents together may not exceed 100 pages. Videos of up to ten minutes are required. All submittals must be in the same file formats specified for the Design Round.

8.d. Finalist Round Judging

Standard productivity, costs, and net economic values for each crop or other output product are provided in Crop Specification Table (Appendix B). Judges will calculate the economic value score of a team's submittal using these values and those reported by the team as described in Appendix A.

The judges will combine this score with an assessment of the team's business model to determine a final score.

8.e. Finalist Round Prizes

The judges will award a $1,000,000 Grand Prize, a $300,000 Second Place Prize, and a $150,000 Third Place Prize to the teams obtaining the highest Finalist Round scores. The judges will award two additional $100,000 prizes: one for the most creative use of Fourth Industrial Revolution (4IR) technologies and one People's Choice Prize. The following prizes will be awarded in the Finalist Round.

Prize Type	**Amount**
Grand Prize	$1,000,000
Second Place	$300,000
Third Place	$150,000
Most Creative Use of 4IR Technologies	$100,000
People's Choice	$100,000
Total	*$1,650,000*

Appendix A - Net Economic Value Calculations

A portion of a team's final score is based on the increase in net economic value (NEV) a farmer can obtain by implementing the team's design. That increase incorporates any improved productivity, reduced post-harvest loss, reduced operating costs, and/or increased value of the product sold.

The Crop Specification Table (Appendix B) provides standard economic and agricultural values. These values are representative of crops across a wide range of African countries and growing conditions. The data provided by teams from their control tests will supplement this information, allowing the judges to account for the actual conditions (soil, weather, etc.) encountered.

The NEV incorporates four components:

Productivity: The quantity and/or grade of the crop produced by the farm at harvest as measured by the crop's potential value. The potential value is the value the farmer would receive if the crop in the field were sold at that moment. Productivity will be measured starting from the planting standard specified in Appendix B. A larger quantity of a lower-grade crop may have a lower potential value than a smaller quantity of a higher-grade crop. This calculation is used to award the Design Round's Increased Productivity prize.

Loss: The reduction in the quantity and/or grade of a crop between harvest and when it is sold at market. Loss will be measured starting from a crop of the quantity and grade specified in Appendix B. This calculation is used to award the Design Round's Reduced Post-Harvest Loss prize.

Operating Cost: The total cost of ownership and operation of all equipment, consumables, and labor.

Realized Value: The value of a farmer's harvest when sold at market. This value incorporates the quantity and/or grade of the crop sold.

In the Finalist Round the judges will use the standard values from Appendix B to calculate a crop's baseline NEV, adjusted for the actual conditions measured by a team's control test. If, for example, rainfall during the field test is 50% of normal, the baseline crop grade and quantity will be adjusted to reflect that change, producing a different baseline NEV.

The business model and the actual quantitative results measured in their field and control tests will be used to calculate the NEV of a team's design. Teams will be scored on the increase of their demonstrated NEVs over the baseline NEVs.

Appendix B - Crop Specification Table[4]

Crop	Planted (ha)	Production (Tonnes)	Yield (hg/ha)	Loss (40%) (Tonnes)	Countries Surveyed	Production value (USD$1,000)
Beans, dry	7,893,915	7,052,612	8,934	2,821,045	Angola, Burundi, Cameroon, Ethiopia, Kenya, Rwanda, Tanzania	$408,235
Cassava	21,636,534	192,102,224	88,786	76,840,890	Angola, Benin, Cameroon, Côte d'Ivoire, Ghana, Malawi, Mozambique, Nigeria, Sierra Leone, Tanzania	$2,262,205
Cocoa, beans	8,616,815	3,752,740	4,355	1,501,096	Cameroon, Côte d'Ivoire, Ghana, Guinea, Nigeria	$869,043
Coffee, green	3,094,925	1,207,944	3,903	483,178	Côte d'Ivoire, Ethiopia	$319,511

[4] Source: Food and Agriculture Organization of the United Nations FAOSTAT http://www.fao.org/faostat

Crop	Planted (ha)	Production (Tonnes)	Yield (hg/ha)	Loss (40%) (Tonnes)	Countries Surveyed	Production value (USD$1,000)
Groundnuts w/shell	17,146,248	16,636,819	9,703	6,654,728	Burkina Faso, Cameroon, Chad, Ghana, Guinea, Malawi, Mali, Nigeria, Niger, Senegal, Tanzania	$381,692
Maize	40,711,874	81,891,311	20,115	32,756,524	Egypt, Ethiopia, Nigeria, South Africa	$2,318,274
Mangoes[5]	1,036,016	8,955,539	86,442	3,582,216	Egypt, Kenya, Malawi, Mali, Nigeria	$341,0234
Millet	20,422,563	13,701,709	6,709	5,480,684	Burkina Faso, Chad, Ethiopia, Ghana, Guinea, Mali, Niger, Nigeria, Senegal	$390,641
Potatoes	1,763,848	26,534,489	150,435	10,613,796	Algeria, Egypt	$1,437,904

[5] Includes mangosteens and guavas

Crop	Planted (ha)	Production (Tonnes)	Yield (hg/ha)	Loss (40%) (Tonnes)	Countries Surveyed	Production value (USD$1,000)
Rice, paddy	17,110,769	38,771,392	22,659	15,508,557	Egypt, Nigeria, Tanzania	$1,727,419
Seed cotton	4,908,983	5,125,490	10,441	2,050,196	Benin, Burkina Faso, Cameroon, Chad, Côte d'Ivoire, Egypt, Mali	$283,230
Sisal	97,036	76,638	7,898	30,655	Ethiopia, Kenya, Malawi, Morocco, Mozambique, South Africa	$6,310
Sorghum	28,426,672	28,619,588	10,068	11,447,835	Burkina Faso, Cameroon, Chad, Ethiopia, Malawi, Mali, Nigeria, Niger, Tanzania	$613,838
Sugar cane	1,580,586	97,329,765	615,783	38,931,906	Egypt, South Africa	$833,938

Crop	Planted (ha)	Production (Tonnes)	Yield (hg/ha)	Loss (40%) (Tonnes)	Countries Surveyed	Production value (USD$1,000)
Tea	459,046	749,030	16,317	299,612	Kenya, Malawi, Mozambique, Rwanda	$299,950
Wheat	9,765,237	26,921,248	27,568	10,768,499	Egypt	$3,070,811
Yams	8,724,410	72,413,085	83,001	28,965,234	Benin, Cameroon, Central African Republic, Chad, Côte d'Ivoire, Ghana, Guinea, Nigeria, Togo	$1,997,401