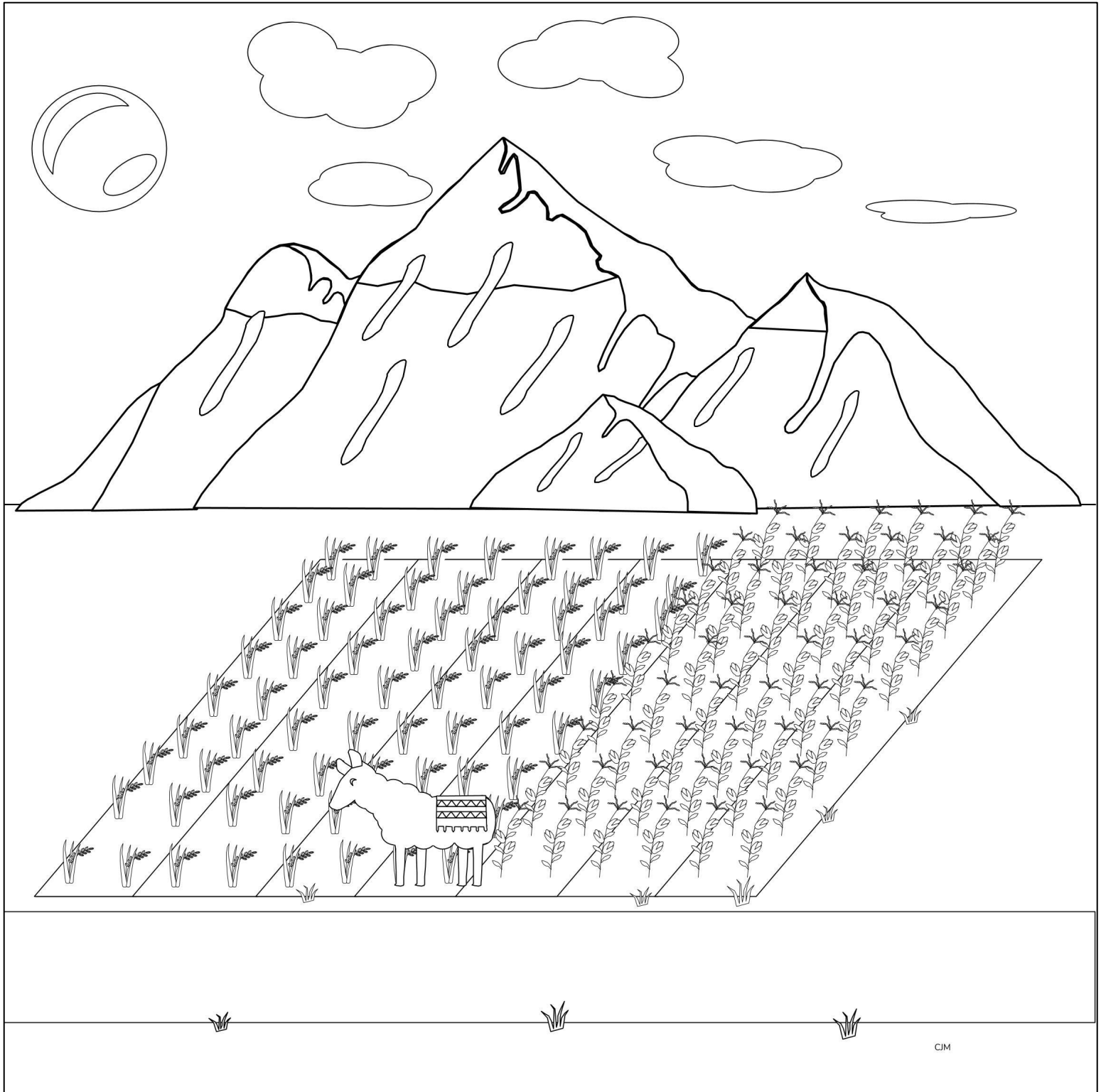


Lorenzo Llama lives in the high plains of the Andes Mountains of South America, where he spends his days eating arroz and maize. The alpine glaciers on the Andes are the source of water for Lorenzo's fields.



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was developed at the Geospatial Analysis Center in the Department of Geography at Miami University by Dr. Jessica L. McCarty & Mr. Clayton J. Mescher, July 2019. Drawings by CJ Mescher.

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Lorenzo Llama loves the glaciers. The glaciers are helping keep Lorenzo cool. How? The albedo effect. The light color of the surface of the glaciers reflects more of the sun's energy (and heat!) back into the atmosphere.

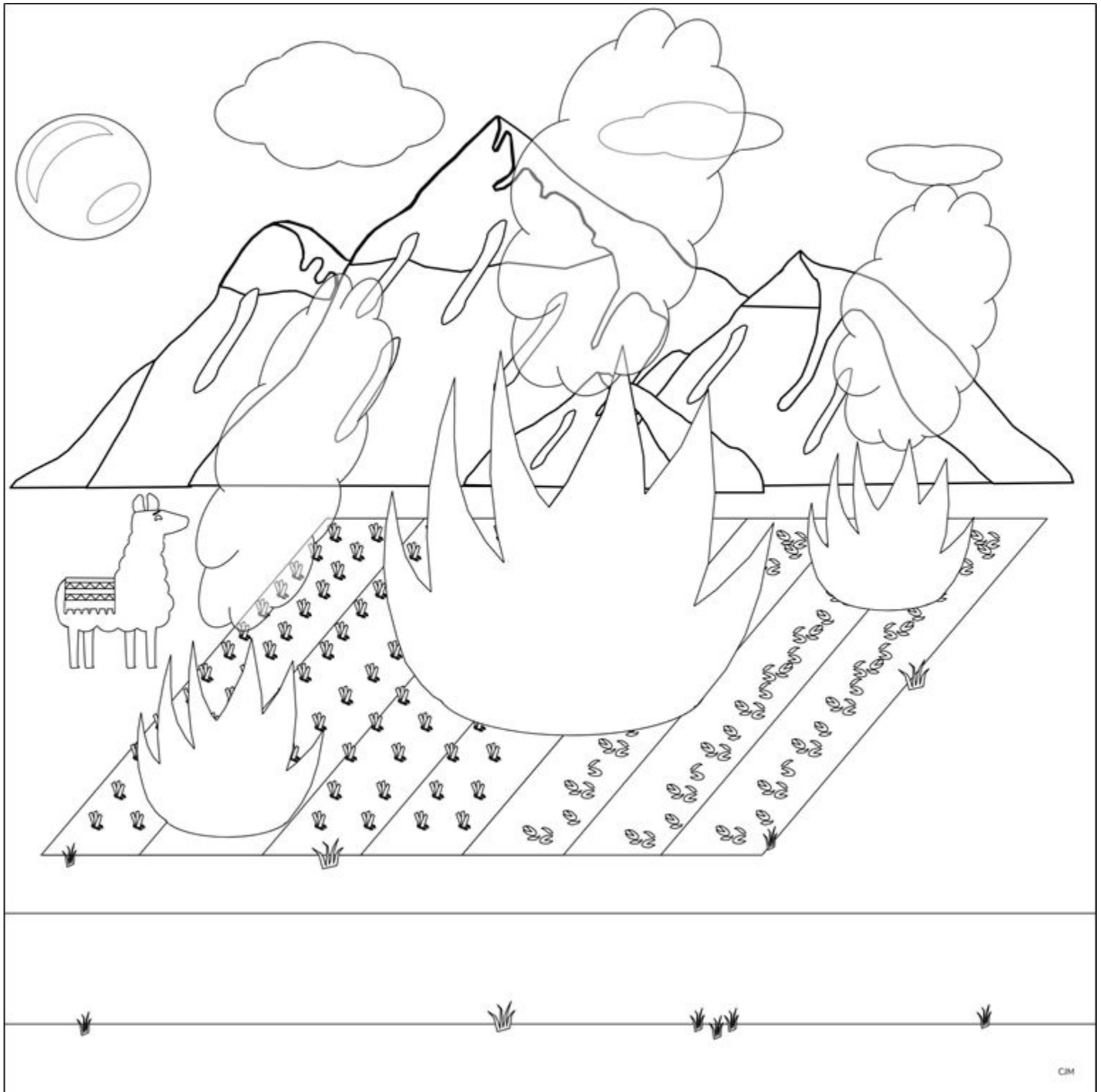


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Lorenzo Llama learned farming from his Abuelo Llama. In the past, Abuelo Llama burned the arroz and maize after harvest. Lorenzo Llama does the same, but doesn't like the smoke. It makes the air hard to breathe.

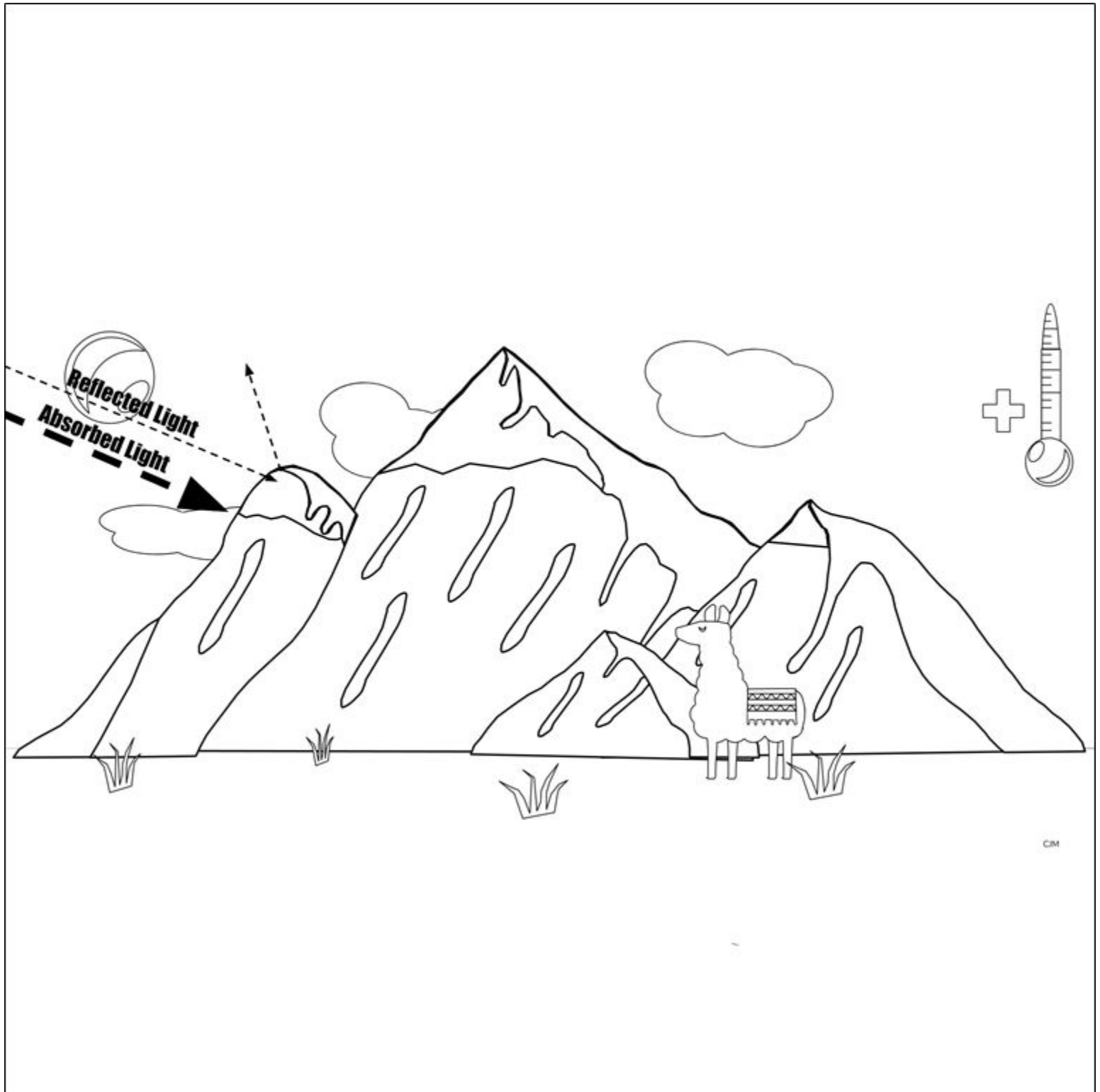


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Lorenzo Llama notices after he burns his fields, that black carbon - the dark part of smoke - settles on the surface of the glaciers. The black carbon makes the ice dark, changing the albedo. Now the glaciers absorb more of the sun's energy, causing the glaciers to melt. Lorenzo is worried.

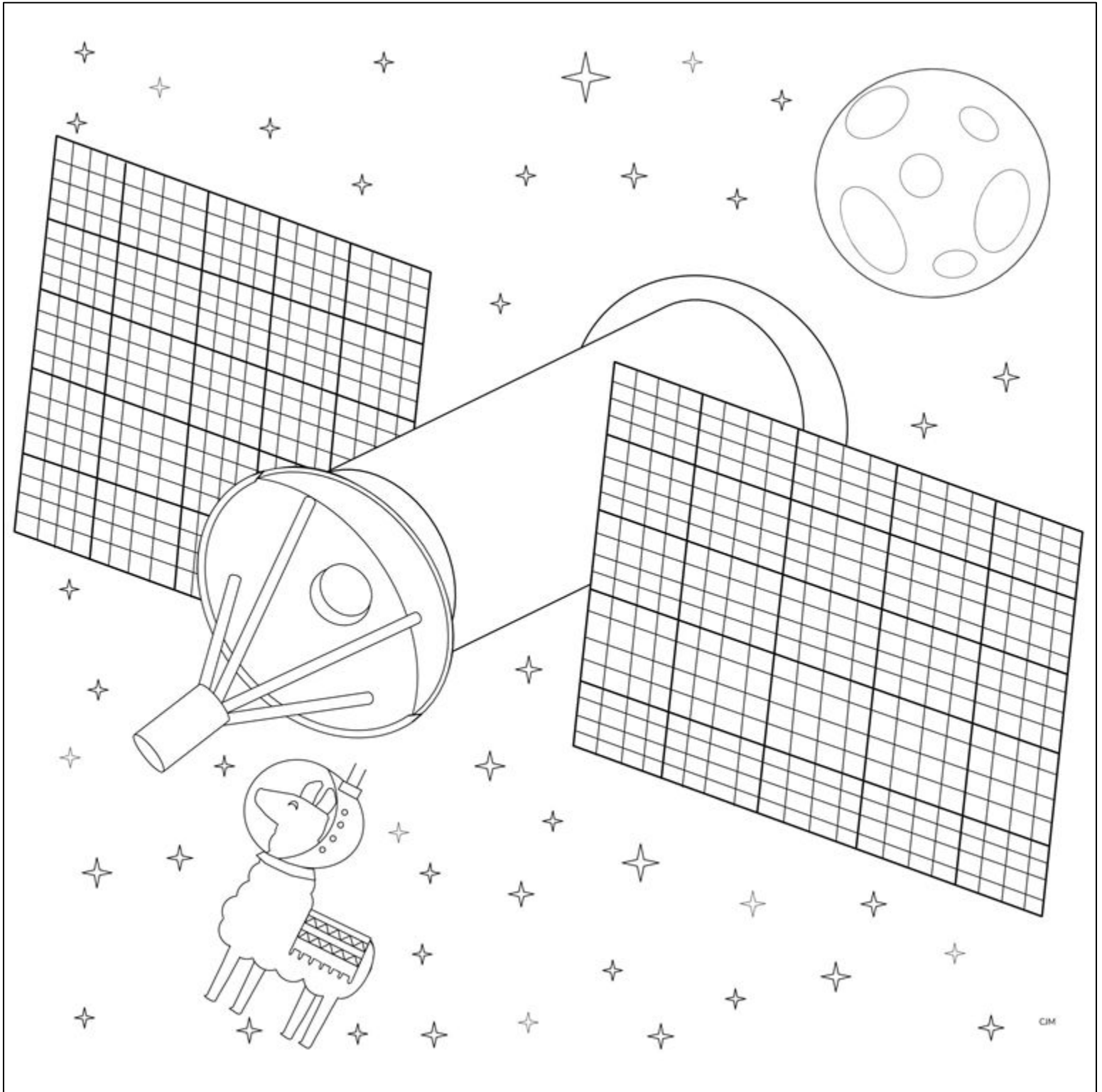


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Lorenzo Llama decides it is time to investigate! He uses satellite data to map the locations of fires near his home in the Andes. The satellite data helps his record the time and place of each fire - plus distance to glaciers.

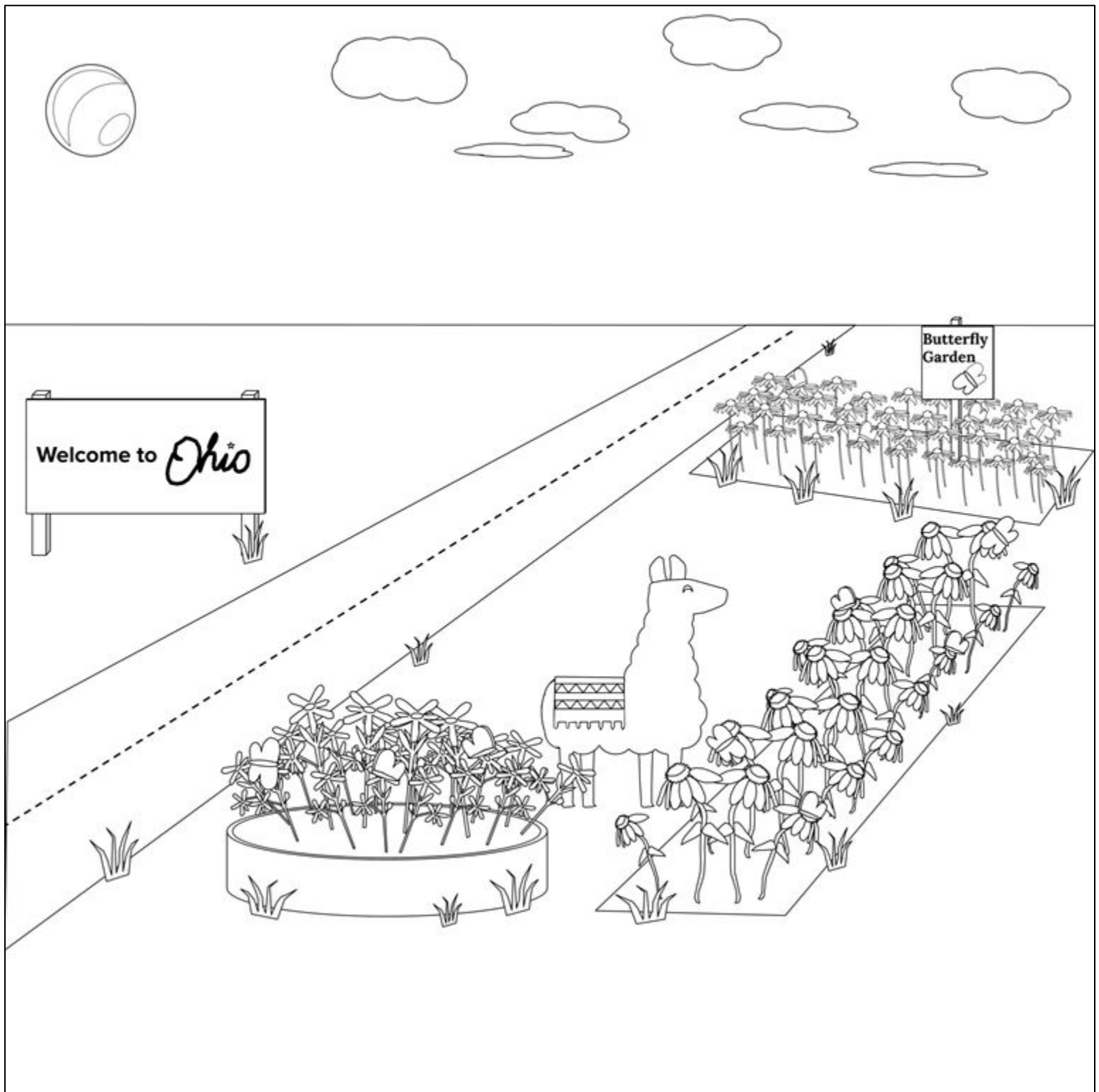


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Lorenzo Llama goes on a scientific exchange to learn more about mixing native plants with his crops. He visits Ohio and counts the butterflies in the Rudbeckia spp. (Black-eyed Susan), Echinacea spp. (Purple coneflowers), and the endangered Silene regia (Royal catchfly).

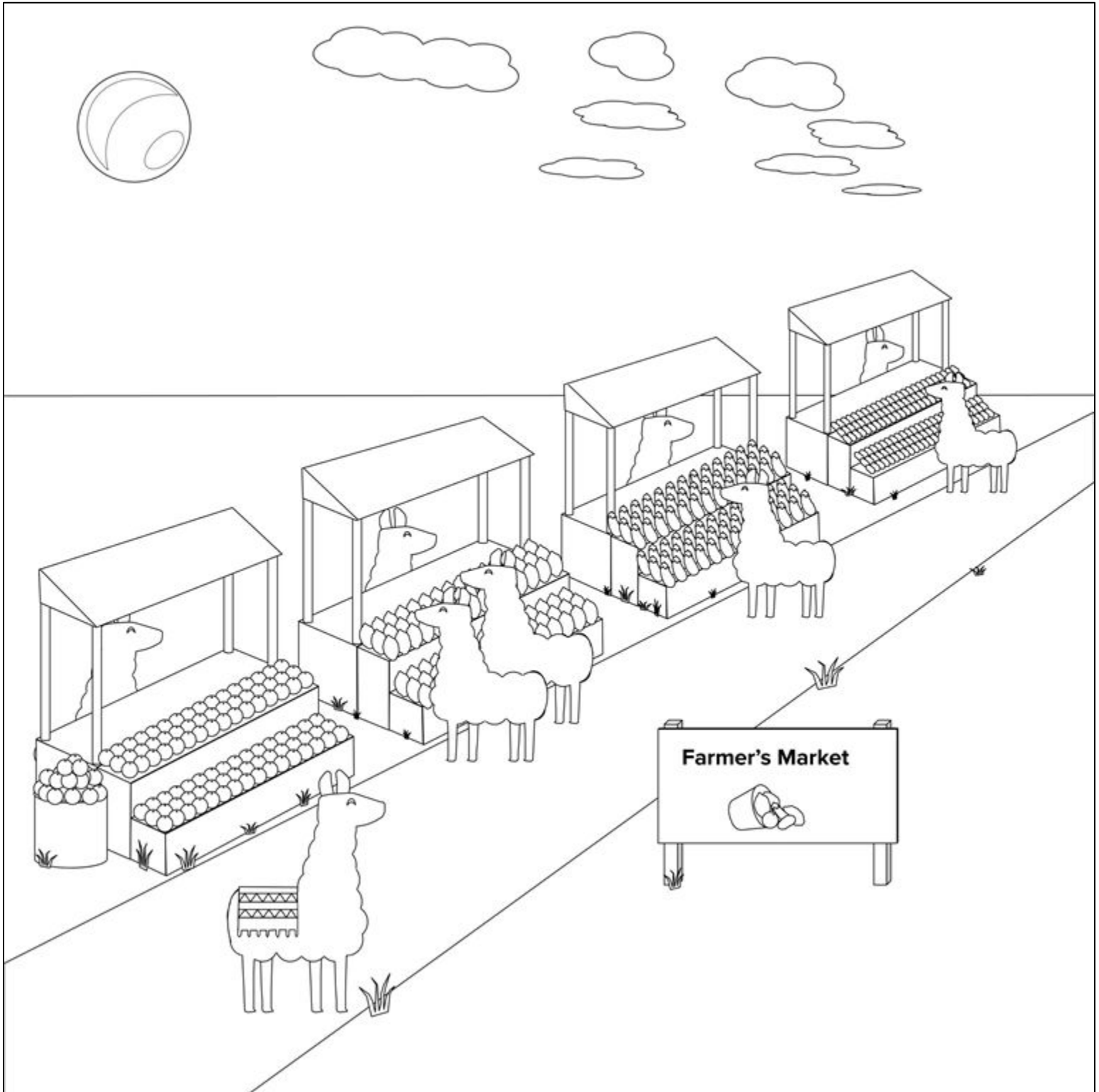


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Lorenzo Llama also visits the local farmer's market, where all the fruits and vegetables are grown using sustainable practices that do not break the soil by plowing. This is called no-till. He especially likes the potatoes!

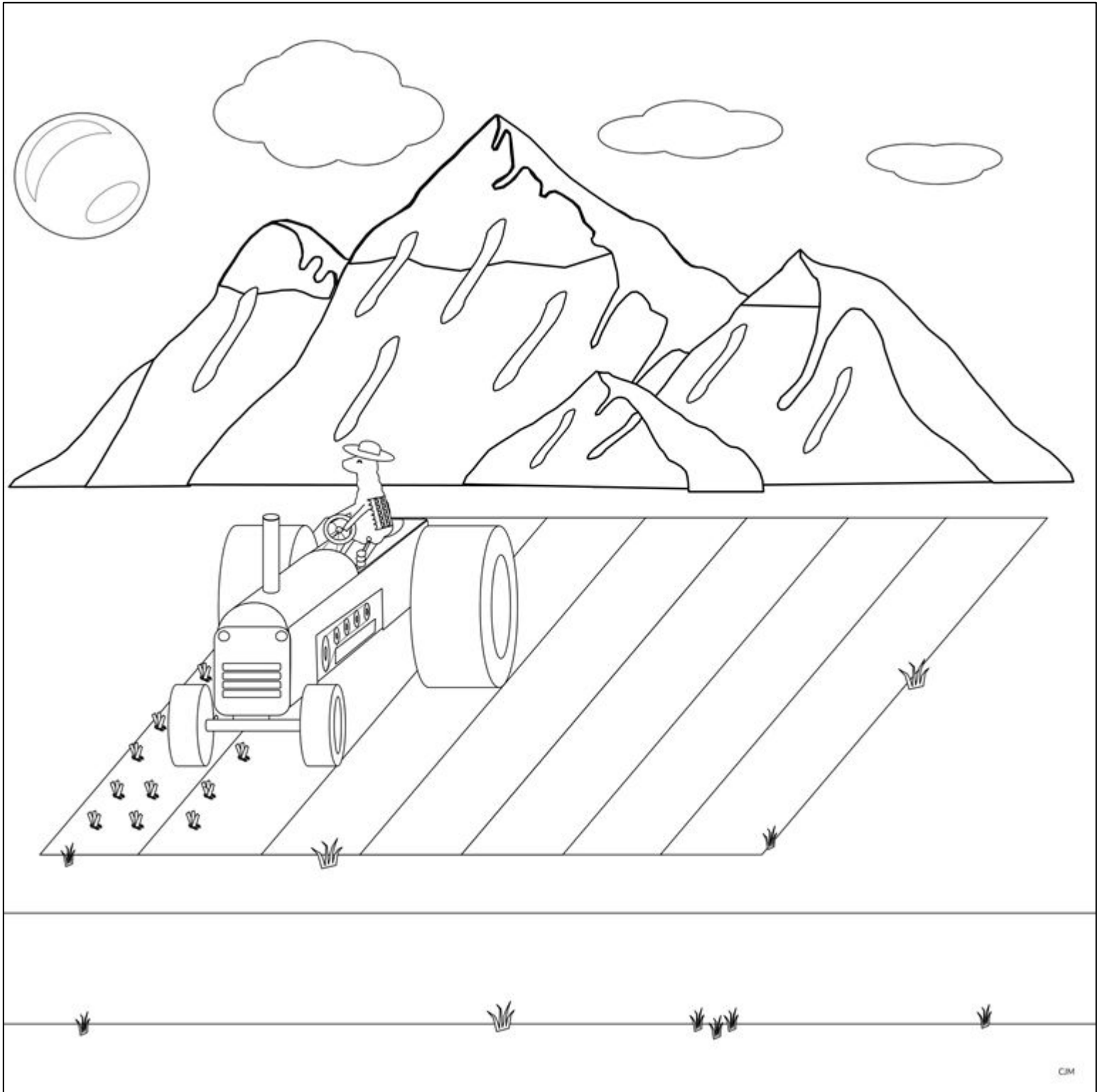


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Lorenzo Llama thinks back to how his Abuelo Llama, taught him how to plow. Sure is dusty work! And the gas for the tractor costs a lot, too. Should Lorenzo Llama keep plowing? Or should he try no-till?



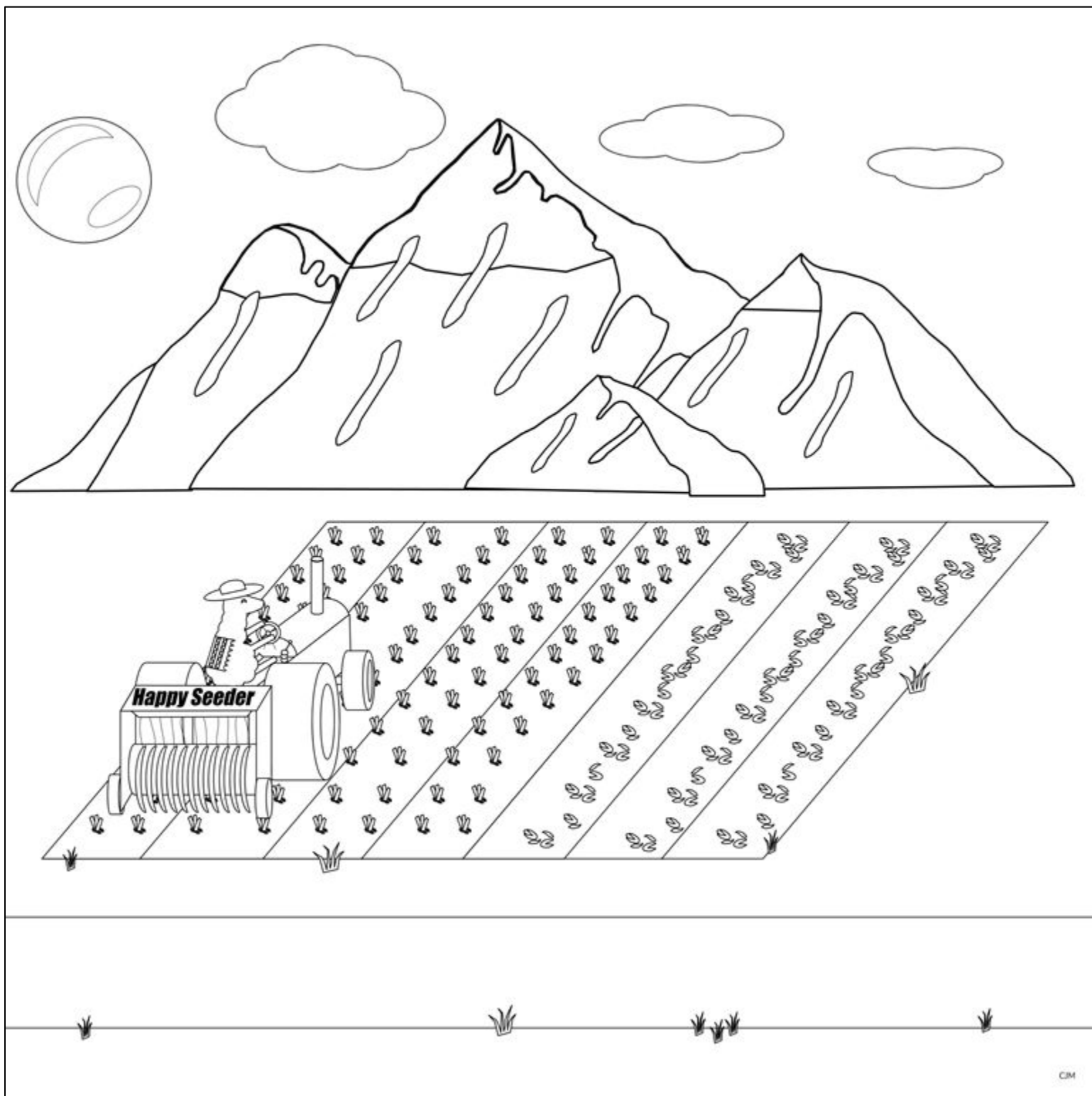
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Back home from his trip, Lorenzo Llama decides to use his new Happy Seeder. The Happy Seeder attaches to Lorenzo's tractor and seeds directly through the leftover arroz and maize plants from harvest. No more burning! And no more tilling!

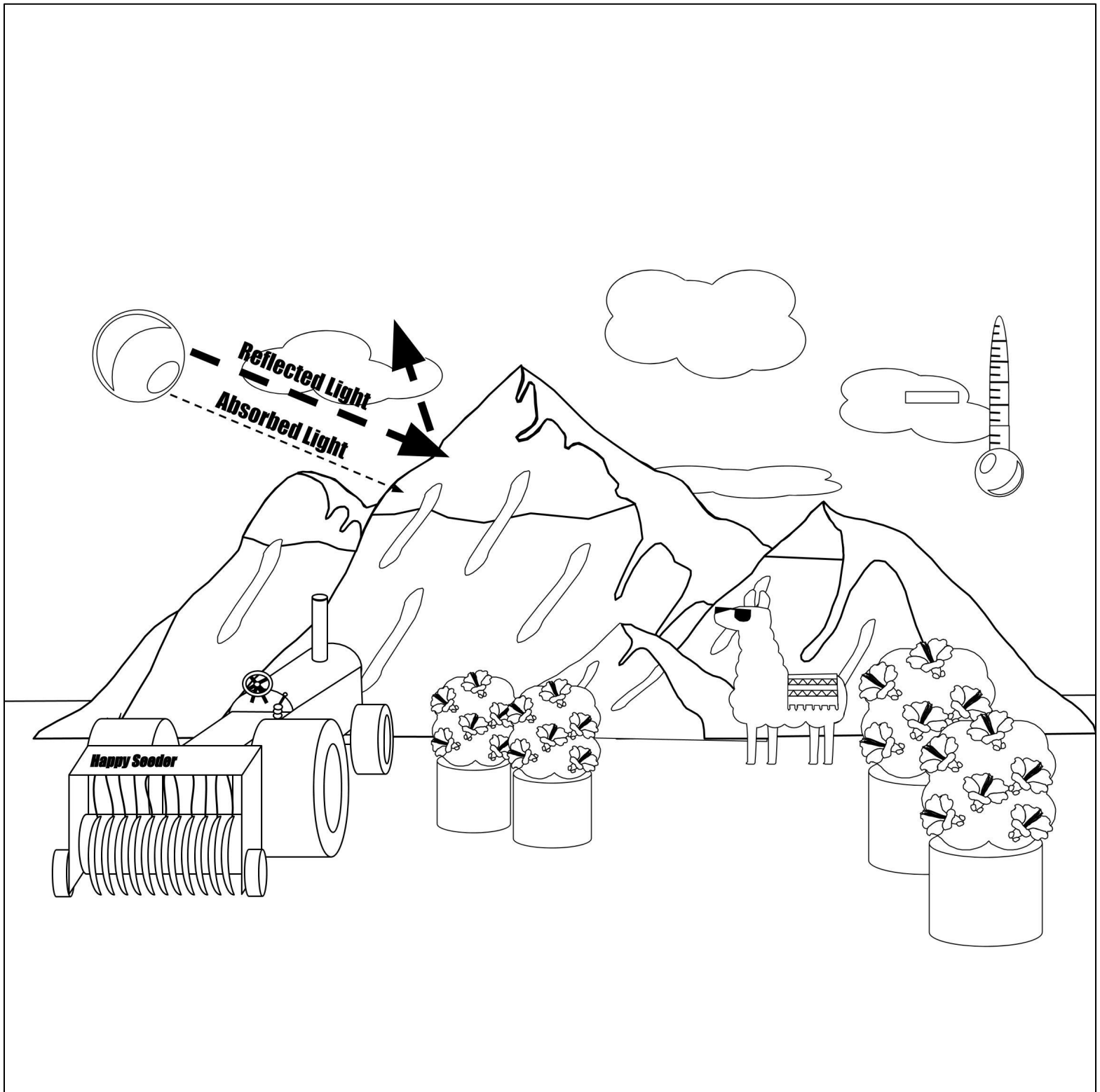


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Lorenzo Llama loves the glaciers. And with his new regenerative and climate-smart agriculture practices, he won't be adding any new black carbon to the Andes. Very cool.



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