



### Reaching the end-user with biomass vending machines

ous benefit is the retention of a larger proportion of the added value within the producing farm. Direct sales allow saving the costs of intermediation and retailing. Ideally, the producer will earn more, and the user will pay less: a real win-win (except for retailers, of course!).

What people often get wrong is the role of the retailer within the supply chain. A common opinion is that retailers are just speculators, who buy at a low cost and sell at a high price, earning lots of money for no real work. While the position of retailers within the supply chain may favour speculation, retailers do work, and they do offer a valuable service. Witness to that is the difficulty most producers encounter when they want to reach the end-user directly. Those who try, soon realize that retailing is a real job, which takes considerable time and effort. Producers who want to reach the end user have to do two jobs a time. That is neither realistic nor sustainable... unless one can automate retailing through a network of unmanned counters! That is the very concept behind vending machines, which have already become popular with farmers for selling food products directly to the general public. If you cannot do the work yourself and you do not trust (or cannot afford) another human to do that work, you can always try tasking a machine with it...

Few years ago, wood biomass vending machines started appearing in growing numbers. Most of them would deliver specifically pellets, but they can be set for firewood as well. In Italy, biomass vending machines are designed, built and sold by two main companies: DAB and Pellet drive. While the technical solutions differ with the model, all machines perform the same basic tasks that must be accomplished by any vendor – human or mechanic: 1) store the product; 2) advertise the product; 3) receive the agreed payment; 4) release the agreed amount of product. The simplest solution is that offered by Pellet Drive (<https://www.pelletdrive.it>). Their machine is essentially a box with a motorized shutter. The box hosts a scale, where the product is stored. Customers download an App on their phone and use that to interact with the vending machine. That way they can load a credit on their account, open the box gate and collect the desired amount of product. The scale will automatically measure the amount of product collected and that will be recorded on the customer's account. Once the credit is exhausted, the machine will send a warning so that the customer can recharge his/her account. That can be done through the home banking facility or just by visiting an authorized provider, generally a store in the vicinities, very much like one will recharge one's own phone card. The machine does not accept cash, so as to avoid all issues with security, especially in remote areas. Pellet Drive currently has 15 machines in operation, 9 distributed between the south and the islands of the country, 5 in the north and 1 abroad in Belgium. As for the DAB company, the machines amount to 50: 5 in northern Italy while the rest are located between the center and south and it also plans to extend abroad to Switzerland and Belgium.



#### KEY WORDS

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Pellets

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#### AUTHORS

Raffaele Spinelli (CNR-IBE)  
Team ITABIA

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## ADDITIONAL INFORMATION

This system is very flexible, because it can be adapted to any products coming in discrete units (packs, bundles, bricks etc.), which allows extended service when the winter season is over and fuel demand dwindles. Most of the cost is in the software, and users can multiply their own selling points at the small incremental cost of the simple hardware. Nevertheless, the Pellet Drive box is nice looking, features a number of advanced security devices and sports a bright monitor for advertising the product – or for selling ads to other businesses and integrate the revenue stream.

DAB offers a similar service but in a more sophisticated format (<https://dabdistributori.com>). Their vending machine is designed to deliver loose product and is best suited to pellets, nutshells or pomace. The stated intent of the producer is to minimize packaging, which is an emerging environmental issue, as well as to facilitate customers by dispensing any amounts of their choosing – not just discrete units with a set quantity (e.g. 15 kg bags etc.). The DAB machine is fitted with a conveyor extracting from a 4-tons tank only the quantity of pellets ordered by the customer. The product being delivered is weighed in real time by a certified scale and then released into the container placed under the chute by the customer, who pays the exact value of the delivered weight. Product quality and integrity are guaranteed by a leading engineering office, years of continued operation and by the double integrated dedusting system. This machine can accept cash or credit cards for recharging the user's credit and can be equipped with advanced security features, such as user fingerprinting for authorizing purchases and payments. The DAB machine is equipped with its own integral vacuum loader for quick tank refilling. Both systems are meeting with widespread acceptance: many units have been installed at shopping centres, gas stations, car washes and any convenient, strategically located sites.



## ABOUT BRANCHES

BRANCHES is a H2020 “Coordinator Support Action” project, that brings together 12 partners from 5 different countries. The overall objective of BRANCHES is to foster knowledge transfer and innovation in rural areas (agriculture and forestry), enhancing the viability and competitiveness of biomass supply chains and promoting innovative technologies, rural bioeconomy solutions and sustainable agricultural and forest management.

COORDINATOR: Johanna Routa - (Luke) [johanna.routa@luke.fi](mailto:johanna.routa@luke.fi)  
DISSEMINATION: [itabia@mclink.it](mailto:itabia@mclink.it)

[www.branchesproject.eu](http://www.branchesproject.eu)



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## THE PARTNERSHIP

