

CAFNR Agricultural Experiment Station Budget Model Committee Final Report

In the spring of 2019, Dean Daubert and Associate Dean Jose appointed a committee of research center superintendents and tasked them with developing a budget model for the Missouri Agricultural Experiment Station (AES). The committee was co-chaired by Andrew Biggs (Bradford Research Center) and David Cope (Southwest Research Center), also included were David K. Davis (Forage Systems Research Center), Jennifer Miller (Hundley-Whaley Research Center), and Dusty Walter (Wurdack Research Center/Land of the Osages Research Center). This committee represents the diversity of agriculture research and engagement in the AES system: row crop, livestock, horticulture, forestry, etc.

After the initial meeting, it was determined that there was a need for a defined set of metrics on which each center would be evaluated to help establish their allocation for the following year. Two potential ways of funding the centers were explored, and could potentially be combined.

The first methodology for funding each center would be based upon tangible attributes: building square footage, acres in research, demonstration acres, farmable acres (not used for research or demonstration), nonfarmable acres, number of visitors from the previous year, presence of a full-time onsite superintendent, and the centers main focus (timber, row crops, or livestock). Each center's superintendent provided this information to the committee. In addition, the committee considered other metrics such as number of resident faculty, faculty users, staff users, students and graduate students, number of field days, and grant expenditures; the concept of a tiered system was also explored.

Comparing current allocations among centers, it was determined that Fisher Delta Research Center (FDRC) was the most adequately funded and therefore used as the baseline to develop multipliers for the tangible attributes. Using the metrics described above we were able to get within \$37 of FDRC's 2019 allocation. The following multipliers were applied to the tangible attributes: buildings square foot – 2, research acres – 930, demonstration acres – 200, farmable acres – 25, nonfarmable acres – 20. The committee used farm type multipliers of 0.5 for centers that focused on timber resources, 1.0 for those focusing on row crop, and 1.05 for livestock as the farm type multiplier. One drawback (flaw) to developing a funding model based upon known allocations is that the developed model is good at predicting how funds were (are) distributed and not necessarily where funds should be allocated. An example of this shortcoming is illustrated by the fact that it takes much more than a 5% increase in effort and expense (funding) to operate a livestock enterprise than a row crop enterprise of similar size even though the model is fairly accurate (by chance) in predicting current allocations without regard to actual need.

Nevertheless, the proposed model's math is as follows: $\text{Farm Type Multiplier} \times (\text{base allocation of } \$110,000 + ((\text{building sq. ft.} \times 2) + (\text{research acres} \times 930) + (\text{demo acres} \times 200) + (\text{nonfarmable acres} \times 20) - (\text{farmable acres} \times 25)) + (\text{visitors} \times 2)) + \text{onsite superintendent } 100,000 \text{ or } 0 [100,000 \text{ if yes, } 0 \text{ if no}]$. Using these metrics and variables with the other centers' data, the combined AES budget model total was \$6,120,923. This is \$3,966,408 over the total combined AES research centers allocation for 2019; illustrating that currently most (if not all) AES centers are drastically underfunded.

Because the total 2019 AES allocation was only \$2,154,515, each centers' new model percentage was prorated to the historical budget. This had either net positive or net negative impacts for several centers. For example, Greenley Center and Thompson Center had significant and unprecedented increases while Delta Center had a significant reduction in their funding level. It was determined by the committee that this model would have to be modified to address these situations.

After many committee discussions, some including Associate Dean Jose and Assistant Director of AES Reinbott, it was determined that this model will not work to base all centers' allocations on. The model has several flaws in addition to the one outlined above. First, total acreage (research, non-research, demonstration, farmable, nonfarmable) reporting needs to be objective and not subjective since the model incentivizes certain types of acres more than others. Another major concern is that the model is primarily acreage driven. There are a number of small scale experiments going on within the AES that are funded by extremely large grants, and conversely, there are a number of large scale experiments

that are funded by relatively small grants. The proposed model does not capture this information, even though this is important to CAFNR with regard to large scale University grant expenditures. Assuming a “new” approach to the annual allocation model is desirable, then a new and innovative funding model should be developed with disregard to how funding currently is allocated.

There was an attempt to look at grant expenditures as a portion of the new proposed model. Presently, the ability to ascertain grant originating funds being spent at each center is not readily available. However, if research activity is one of the main goals of a center, the ability to compare research dollars spent at each center is one of the important metrics to include in budget development. The committee also recognizes that grant expenditures may be influenced by other factors, including but not limited to, distance to campus (influencing graduate student activity, PI numbers, travel expenses including time and cost), type of research (livestock, row cropping, forestry, horticulture, etc.), duration of grant, presence or absence of onsite faculty and/or extension personnel, etc. Basically, there are many more aspects of grant expenditures outside the control of a superintendent than there are under a superintendent’s control. The complexity and duration of the system in which we work cannot possibly be captured completely utilizing a model that is so simplistic. If grant expenditures are to be used in budget development, then CAFNR needs to develop an accounting system to adequately report and monitor these types of expenses at each center. At the time of grant submission, PI’s should be required to report **estimated** grant expenditures on each grant at each research center. **Actual** expenditures should be reported annually. Standardized form(s) capturing this data could be developed and completed for every grant within CAFNR; in the event that grant activity takes place at a location other than at an AES research center, they simply indicate so on the form.

If grant expenditures are used in the model, we suggest that the model include at least these 2 concepts: 1) a base allocation determined by the “type” of center 2) grant funds spent at each center as reported by the PI of the grant. As stated earlier, the committee also recognizes that the use of additional objective metrics based upon the CAFNR strategic plan will be necessary in order to truly capture the importance and contribution of each center to the AES. The importance and value of an individual center to the AES cannot be adequately ascertained by only grant expenditures.

Of note, the hypothetical examples are based on “type” of center which to date has not been clearly defined. Currently we are one AES with similar titles and a lack of “type” distinction. If new center definitions are applied, there is no historic model to use in understanding costs that might be associated with facilities, their maintenance, event hosting, demonstration, and need for personnel, or how an all-for-profit center might be managed.

Two hypothetical examples are given below. The base rates used in these examples are for discussion purposes only and do not imply that these base rates should be used or are sufficient for funding.

Example One (Base Rate + Grant Expenditure Adjustment)

If base rates were:

\$100,000 Bradford, Delta, Greenley (others with row crop research focus)

\$200,000 FSRC, SWC, (others with cattle research focus)

\$10,000 Engagement Centers, Centers tied to Departments, etc.

The remaining balance of the AES funding pool would then be divided up on a percentage basis of grant expenditures reported by grant PI’s. For example, if there are a total of \$100 in grants across the entire AES and \$20 of them are spent at Delta Center, Delta Center would receive 20% of the remaining AES funding after base allocations are encumbered.

Example Two (Adjustment to Base Rate Only):

It may make more sense to scale base rate numbers in such a way that they are dependent upon how grant expenditures are spread across the system. For example, if there if there are a total of \$100 in grants across the AES and \$20 of them are at Delta Center, Delta Center would get $(100,000 \times 0.2) + 100,000 = \$120,000$. If the same money was

spent at FSRC, this would instead be $(200,000 \times 0.2) + 200,000 = \$240,000$. Then every property would need to have its base rate scaled up or down evenly to match the money that is actually available.

We really can't comment on which version seems best without actual numbers to use. Because the University accounting system does not capture the information we need on grant expenditures, we cannot determine how many grant dollars are spent at livestock centers or row crop centers. If livestock centers approach or surpass what is spent at the row crop centers, they would run away with all of the money in the second scenario; but if significantly less money is spent at a place like FSRC than Bradford, the second scenario might end up being a good methodology for achieving balance. It's also entirely possible that a difference in base rate between property "types" isn't necessary, depending on how powerful we want to make grant expenditures in the model.

Either version could help address concerns about resident faculty, as they presumably do the vast majority of their work at their respective centers- not on campus or at other centers. It would also help to mitigate the influence of the number of faculty present at facilities close to campus because they do a lot of their work on campus, and that should not count towards any center's total grant expenditures. However, factors not under the control of the center's superintendent also play an important role in determining faculty activity at centers. Associated Division and College budgetary constraints, promotion and tenure, collaboration with MU based faculty, and politics can either offer support or undermine the effectiveness of a faculty member utilizing an outlying center.

Base rate should be adjusted at the initial launch of the model to reflect how much emphasis is placed on research and other metrics. High base rate funding to each center is playing it safe, more bias towards metric driven funding like grant expenditures (low base rate) would potentially allow some centers to flourish, at the cost of other centers.

All centers are encouraged to generate revenue, however, engagement centers should be allowed more latitude in generating revenue, as a priority over seeking out research. Obviously, these centers would not benefit as much from base allocation adjustments due to grant activity. It should be noted that private companies are also experiencing budget cuts and are not a dependable or adequate source of revenue. Engagement centers could apply for grants that are not faculty driven and those dollars should be added to the equation.

This committee is in favor of the base rate being optimized utilizing grant expenditures, and additional metrics being used to adjust the model. It is the belief of the committee that any base rate should include a pro-rated superintendent's salary which reflects annual appointment and effort verification reporting, at centers that have an AES funded Superintendent. However, when additional metrics are used beyond base rate and grant expenditures, those metrics should not be modifiable by those with an interest in a particular center.

In terms of CAFNR's strategic plan, this funding model relates to the strategic priorities in the following ways:

Priority 1: Ensuring Student Success

- Undergraduate students that work at the research centers are generally paid using grant dollars. More grants at a research center will likely translate to more students at the research center. (goal 1)
- Students working at the centers are more likely to encounter modern technology at a well-funded center, making the experience more relevant to future job placement. (goal 2 and 3)
- Signature experiences and internships at the research centers are often paid using grant dollars, tying these experiences to grant expenditures. (goal 4)
- Graduate students are often paid using grant dollars. (goal 5)

Priority 2: Advancing Research and Innovation

- This model encourages Superintendents to support a culture of research excellence. (goal 1)
- This model encourages Superintendents to promote research, innovation, and entrepreneurship. (goal 2)
- This model encourages Superintendents to cultivate multidisciplinary collaborations. (goal 3)

Priority 5: Cultivating a Diverse and Inclusive Community

- Bringing more research to each research center will by its very nature increase diversity at each successful research center. It will bring more people within CAFNR to the center, but will also bring more members of the public interested in the research to the centers' field days. (goal 3)

The obvious downside to this proposed model is that some centers may not survive. Unfortunately, *none* of the research centers will be effective with additional budget reductions using our current historical model.

The idea was also brought up several times to have different classes of centers. The committee opposes this concept if it involves taking funding that could be used to support research centers that are conducting research. There are several centers that do not support much faculty driven research, yet they impact their community in a positive way. Funding from other sources, such as Extension, contract work, or grants, should be sought to support these centers. Historic budget cuts have resulted in very lean centers. It is not possible to sustain the current number of research centers utilizing the current pool of funding, and expect to get anything other than, at best, a mediocre result.

While research is crucial to the CAFNR mission, it is conducted at a cost. An alternative approach could involve better tracking of those on-center costs to provide a justification for research fees that each center could charge-out. This would become feasible at outstate research centers, if CAFNR leadership **required** faculty to utilize AES Research Centers as a priority over private facilities. Associated with each research project, these fees might cover costs of fuel, personnel time, equipment use, etc. To date, a certain amount of the cost of research is being absorbed by each center, rather than billed back to each grant/project. Better recovery of center research expenditures by inclusion in the grant writing process may improve overall financial/efficiencies of efficiencies of impacted centers. This would then free General Revenue Allocations dollars to be more flexibly utilized throughout AES.

The committee supports the use of endowments for large projects and to support research centers' daily operations. As a general rule, centers with large endowments should not be penalized regarding offsetting budget reductions; endowments should not impact a center's base rate funding.

Given the loss of state tax revenue, uncertainty with future enrollments, and extremely inadequate budgets, the centers have operated underfunded for decades. It would seem to be pertinent to close or find alternative funding sources for some of the research centers in order to increase funding to other research centers. If local Extension could run them, we could maintain a University presence in these communities. In some cases, land and infrastructure could be rented out in order to provide income to support the remaining centers.

In the case of centers that are predominately (and directly) tied to a Division, a model without a superintendent or with a faculty superintendent should be scrutinized. Often times these centers are monopolized by a singular researcher at the expense of other faculty (especially new faculty) within or among CAFNR Divisions. AES leadership needs to discourage this type of behavior by encouraging collaboration. For centers that fall into this category, the AES leadership should consider letting the Division manage and operate a center, with minimal (lowest base rate) AES funding support. In other situations, a split appointment between local MU Extension and CAFNR could work out well.

Many cuts have to be made to AES expenses. Every AES (CAFNR) program, expense, etc., must be analyzed and scrutinized closely to determine if it meets the needs of today's agricultural and budgetary environment. For example, how is the money allocated to South Farm utilized? Do we need in house carpenters given the benefits and overhead required or would it be more cost effective to hire outside labor on a per job basis? Similarly, would we be better off bidding out heavy equipment work rather than maintaining a team of heavy equipment operators and a fleet of heavy equipment? Do we need a Director of Natural Resource Management for the MOAES or should each superintendent be responsible for the management of natural resources on their respective center? Given our current dire financial climate, should research centers be financing and hosting events that are anything other than purely educational? Could the money spent on events such as the Chestnut Festival, Tomato Day, and the South Farm Showcase be better utilized to protect the properties that are in financial danger? Maybe endowments should be utilized to cover the cost of such

events? How does Jefferson Farm and Garden relate to the rest of the AES financially? Could the resources, both monetary and human, being devoted to deal with JFG be better utilized sorting out some other facet of the AES?

What is the AES priority? Research, engagement, or operating a center in the black: **rank them!** Historically the answer has been that they all matter, but ultimately research needs to be a priority for the research centers to continue to exist. Agriculture Extension needs to step up and do their job by increasing their engagement efforts in order to provide the latest information to Missouri's farmers and thereby reduce our expenses associated with outreach and engagement. Currently, AES centers do not have the staff or time to provide tours, host field days and workshops, support research and generate revenue- that's something only adequately staffed research centers are capable of. Similarly, centers that are drowning in research, need additional resources so that the staff can be freed up to support research and continue to provide engagement opportunities to the public, rather than spending so much time focused on revenue generation. A clearer definition of AES priorities should help direct limited financial resources where they matter most. The bottom line is CAFNR leadership must take the lead in procuring adequate funding for the college and the AES; something they have failed at for over half a century.

The time to act is now. We have all been doing our jobs to build one AES. We have all been doing our jobs proud of CAFNR and proud of the University of Missouri. We take pride in who we are and who we represent. It is a travesty that most centers, which are severely understaffed, do not receive enough allocation from the AES to offset their most basic labor costs. These centers rely on creating additional sales outside of their current scope just to pay the employees in their barebones operations or spend endowment funds to support employees instead of using the funds as an incentive to promote graduate research activity. Time spent on revenue generation would be much better spent on research efforts mandated by the land grant mission. If CAFNR **truly** values the work of its farms and centers, and **genuinely** wants them to be on the forefront of agricultural research, then it will fund them at a level that is adequate. Doing this will require more money and/or a fundamental change in the structure of the AES and the expectations placed on each research center within the AES.