

Needs Assessment of Best Management Practices in Campbell County, Kentucky

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Introduction

Campbell County is the 8th most populous county in Kentucky. It has over 40,000 acres of classified farm land (land that has had an agricultural assessment completed), making up almost half of the total land in the county (Seiter 2015). With this much agricultural activity, it's important that sustainable farming practices are in use to preserve the land's viability for generations to come (Mishra 2018). This study served as a needs assessment for best management practices (BMP's) being used by landowners in the county. BMP's are land management practices that protect water quality, prevent soil erosion and nutrient runoff, and help enhance agricultural production. A study of BMP usage gives the Conservation District a better idea of the efficiency of farm practices in Campbell County, and if there are any major patterns or gaps in practices being utilized. A diverse array of BMP's would show strong efforts are being made by landowners to sustain and protect land and water resources for the future.

One of the most effective ways to inform landowners about precautions they can take to prevent nonpoint source pollution is education (Ribaudo 1999). If the data shows that there are BMP's not being utilized to their full potential, the district can use this information to specify future educational programs or grant opportunities to encourage usage of less popular practices and further promote conservation efforts.

Methods

The data used in this study came from the Agricultural Water Quality Plans on file at the Campbell County Conservation District. Landowners are required by law to complete a questionnaire and submit a plan if they own ten or more acres of land and use it for any agricultural or silvicultural purposes. To ensure that the data were current, only plans submitted since 2009 were used in this study. There were a total of 92 plans on file that fit these qualifications. The BMP's included in the assessment were listed in the Kentucky Agriculture Water Quality Plan Producer Workbook. The data were organized by specific BMP as well as by category of BMP. The categories are shown by the colors on the graph and the specific BMP's are shown by the individual lines on the graph.

Acknowledgements

I'd like to thank the supervisors and staff of the Campbell County Conservation District for their assistance and support of this project.

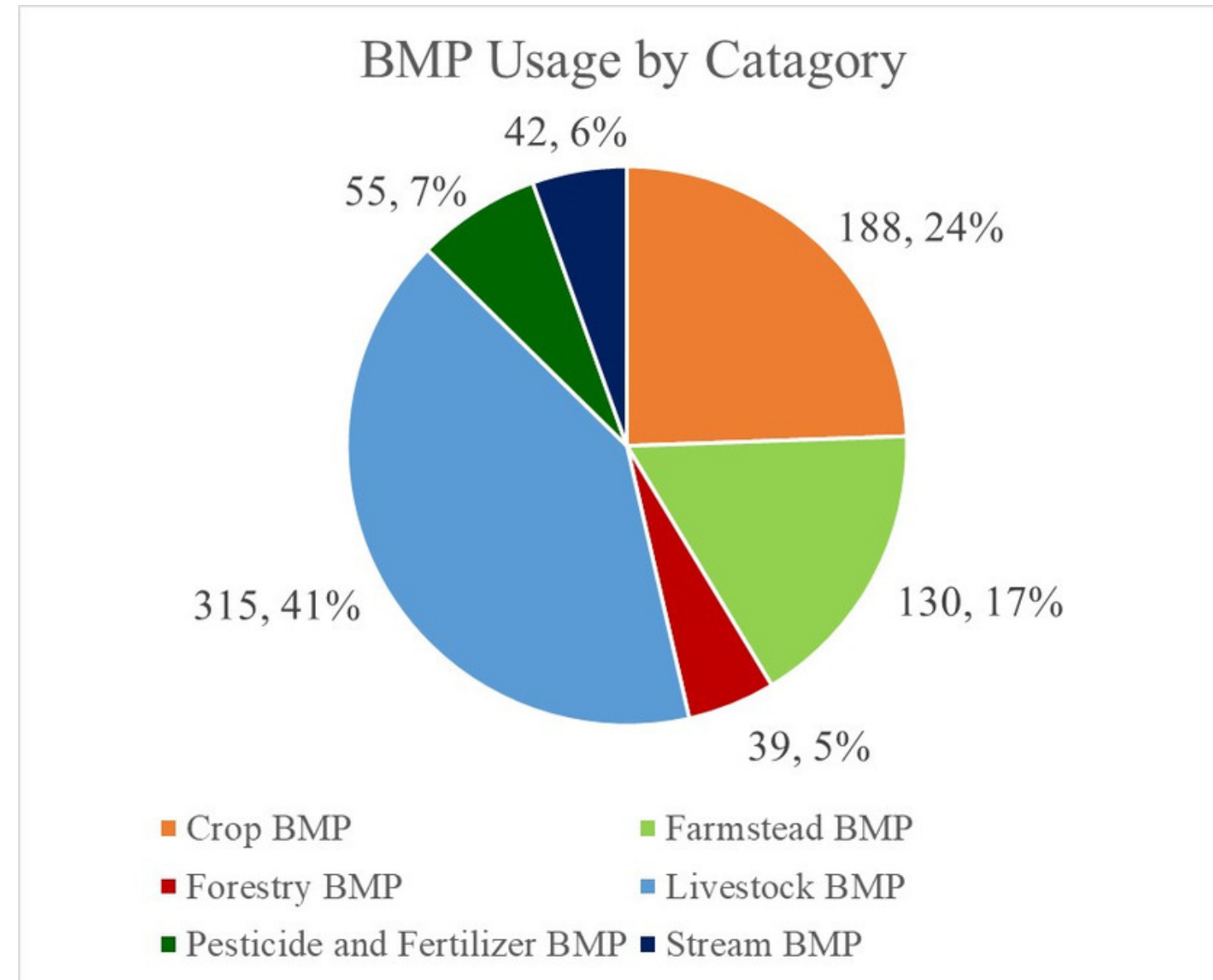


Figure 1: Percentage of BMP Usage by Category of BMP

Results

There were a total of 769 individual BMP's recorded. This data comes from 92 separate plans, meaning there was an average of about 8 BMP's used per plan submitted. The top three BMP's used were septic system and on site sewage disposal, pasture and hay land management, and solid waste procedures. Livestock BMP's were the most common category of BMP, with 315 being recorded and making up 41% of the total. Crop BMP's were the second most abundant, with 188 practices being noted making up 24% of the total. Forestry and stream BMP's were the two least common categories and made up 5% and 6% of the total, respectively. Some of the major factors that affect BMP usage are geographical restraints, knowledge and attitudes towards BMP's by landowners, and difficulty of installation of BMP's (Mishra 2018). This data was also gathered from forms landowners filled out themselves, giving the data more room for inaccuracy due to the survey-type style of collection. Figure 4 displays all of the land that has had an agricultural assessment completed in Campbell County. With that much land being used for agriculture, it's crucial that BMP's are being used to their full potentials.

Discussion

Based on these results, there seems to be a moderate amount of diversity in the BMP's used in the county. A surprising result was the low amount of stream BMP's recorded. As seen in Figures 3 and 4, there are several water bodies and riparian areas that overlap with agriculture parcels in Campbell County. With almost half of the land in the county being farmland, more stream BMP's were expected. This result suggests that more efforts from landowners could be needed to apply stream BMP's to their practices.

It is important to note that not all BMP's are applicable to all landowners due to the unique characteristics of land parcels throughout the county. Also, only about 1/5 of the agriculture water quality plans on file fit the time frame used in this study. This indicates that some type of advertising work is needed to encourage landowners to update their plans on file and that there most likely are more BMP's in use in Campbell County than recorded in the study.

Best Management Practices Used in Campbell County

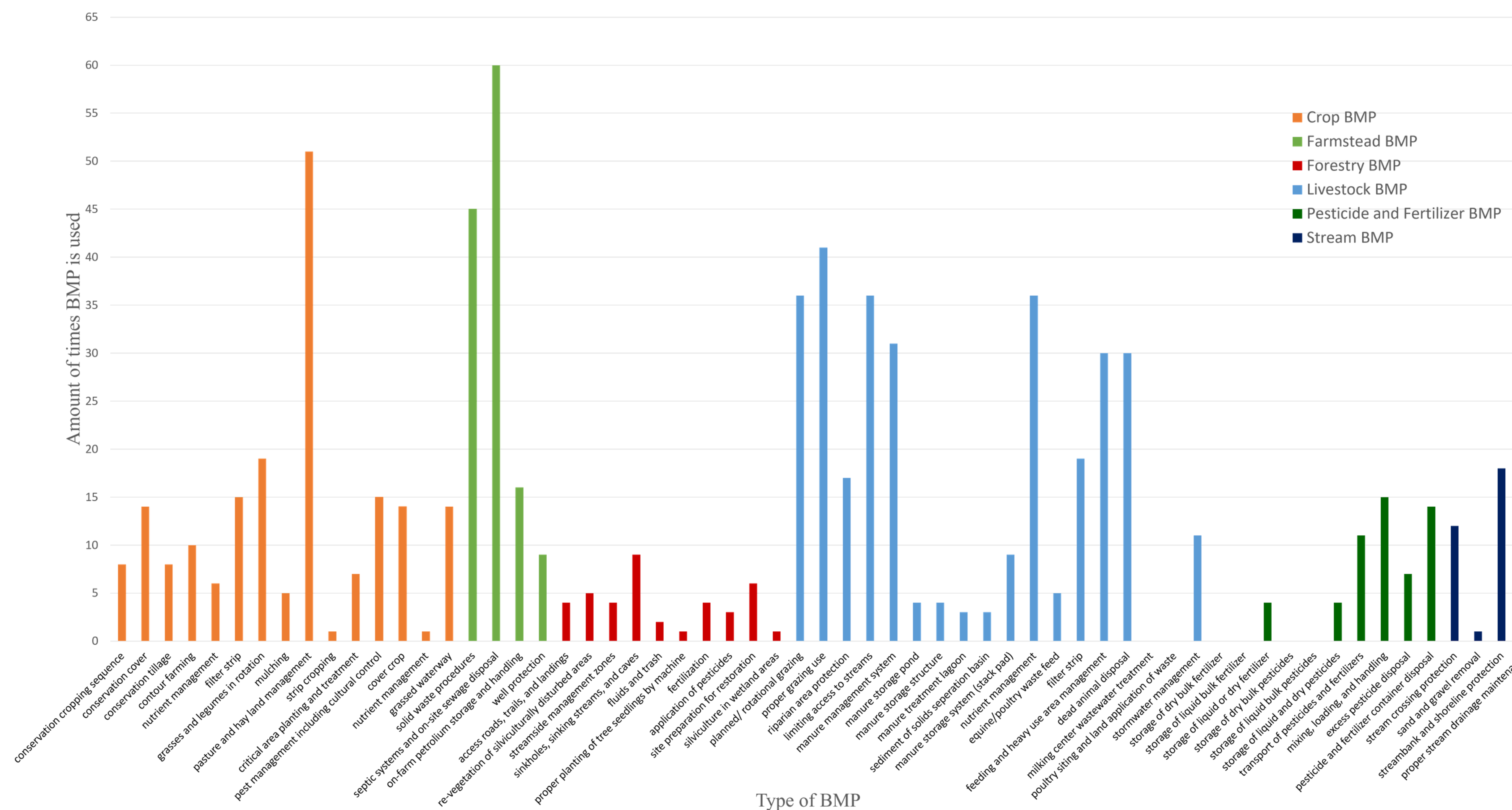


Figure 2: Amount of specific BMP usage in Campbell County, Kentucky

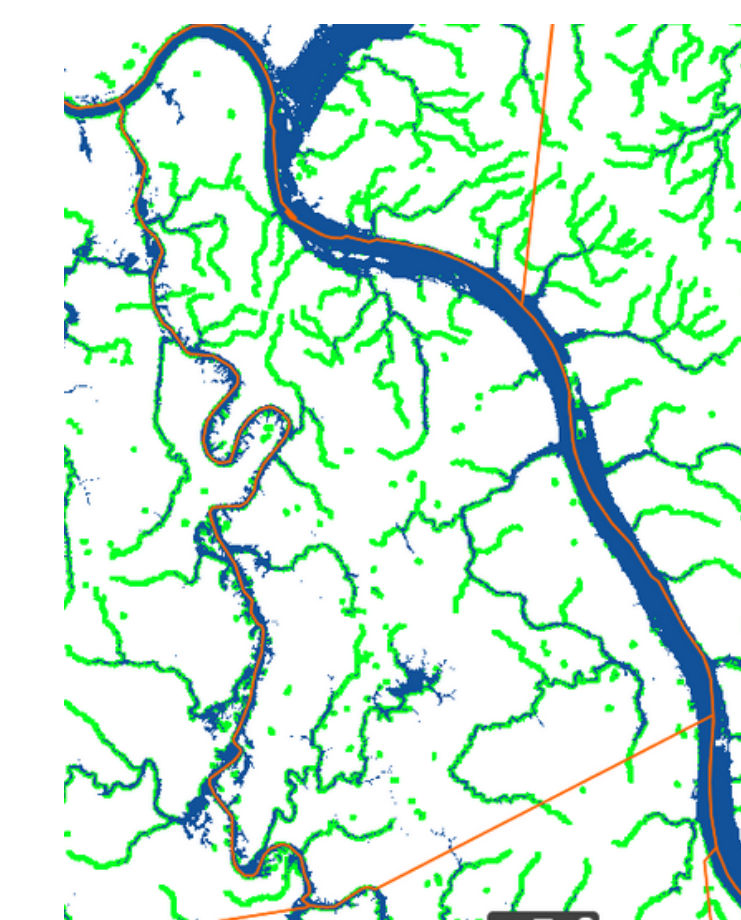


Figure 3: Map of riparian zones (green) and floodplains (blue) in Campbell county



Figure 4: Map of all agriculture parcels found in Campbell County (dark green)

References

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